

NetworkWorld

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Technology

INSIDER

Internet security

The Internet danger zone

Reports of hackers, crackers, script kiddies and cyber-terrorists are everywhere. But how dangerous is the Internet really? We took a two-week slice of Internet activity from several vantage points to ascertain where attacks are coming from, how hackers are looking to get into corporate networks and what they're after.

Who's that knocking at the network door?
Tel Aviv University's 10,000-node network was scanned for open ports 96,000 times in two weeks from machines in 99 countries. This could just as easily have happened to your network. **Page 49.**

What do they want?
A review of security alerts generated at a regional ISP shows that hackers aim to use compromised machines as spam relays, to store illicit files and to launch future attacks. **Page 50.**

The ROI of network security
Strategies for calculating the bottom-line benefit of not getting hacked. **Page 54.**

Online action at www.nwfusion.com:
Headed for your ports
A snapshot of the top ports to watch on your firewall. **DocFinder: 7336.**

Hacker worldwide hot spots
Country-by-country breakdown of hacker activity. **DocFinder: 7337.**

Portability near for wireless set

■ **BY DENISE PAPPALARDO**

Customers want it and the FCC says they soon can have it, but wireless number portability won't be without its hassles.

The FCC has given wireless carriers until Nov. 24 — just in time for Thanksgiving — to let customers switch providers without giving up the numbers they hold so dear.

But carriers continue to fight the seemingly inevitable, seeking the commission's permission to charge more fees to cover the cost of infrastructure upgrades and looking to impose further restrictions on customers. The FCC, which has granted carriers three deadline extensions in recent years to let them better prepare for wireless number portability,

says it plans to make this deadline stick and settle the ongoing debate well in advance of Nov. 24.

For their part, many customers are ready to see what's on the other side of the fence (see graphic, right). Some say they hope to strike better deals; others, such as Intrust Bank, are looking for improved customer service.

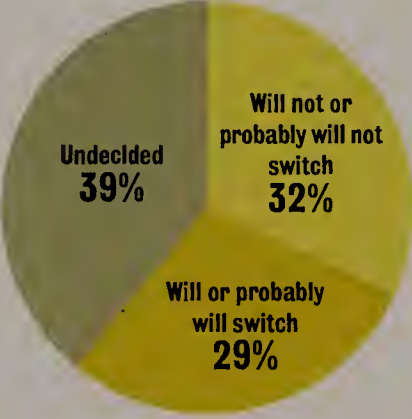
"[Wireless number portability] is a tremendous opportunity for business users," says E. Patrick Rooney, assistant vice president of operations at Intrust, a large chain of banks in the Midwest. "It is a huge administrative and customer relations problem if you have to change phone numbers because you've changed your wireless carriers."

Jeff Maszal, principal at The

See Wireless, page 72

Will they stay or will they go?

Customers are split over whether they will exploit wireless number portability, according to a recent survey of 100 companies with more than 500 employees.



SOURCE: THE MANAGEMENT NETWORK GROUP

Foundry readying WLAN assault

■ **BY PHIL HOCHMUTH**

Foundry Networks plans to go beyond its copper/fiber roots next month when it launches enterprise wireless LAN access points, supporting several 802.11 flavors with features such as Power over Ethernet and 802.1x security.

The company — known more for pushing big bandwidth over

fiber and copper — reportedly also will offer software upgrades for its existing LAN equipment that will add WLAN switching capabilities, such as access point management and control.

■ **Read about Baylor University's experience implementing security across its wireless net. See page 16.**

See Foundry, page 70

User group's demise is sign of times

■ **BY LINDA LEUNG**

The closing earlier this month of the 55-year-old Communications Managers Association, one of the most influential organizations for network executives, is signaling the industry's rise, portending the fading relevancy of such groups.

CMA's demise comes as the industry's focus shifts to new groups.

See CMA, page 17

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A photograph of a modern office hallway. On the left, there is a long wall of glass-walled server rooms with wooden frames. A bright orange horizontal bar runs across the middle of the image. On the right, a man in a dark suit stands looking at a device. The floor is light-colored with a patterned carpet runner. The ceiling has recessed lights.

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News

- **10** Show to feature **VoIP**, voice-recognition gear.
- **10** **FCC** issues rules on tele-com competition.
- **12** **SCO** defends fight with **IBM** at event.
- **12** **Linux advocate** claims **SCO** evidence flawed.
- **14** **Worm outbreaks** saturate networks.
- **16** **Baylor University** signs up for difficult course on **WLAN** security.
- **18** **Expand** offers **WAN** compression options.
- **18** Service manages **Micro-soft** apps deployment.
- **20** **CA** launches network performance mgmt. software.
- **72** Company offers **online** rights mgmt. services.

Infrastructure

- **25** Mobile dial-up app pays off for sales firm.
- **28** **Avaya** cabling makes **10G** go farther.
- **28** **Dave Kearns:** Beware the patent office.

Enterprise Applications

- **33** Revolutionary retailing becomes a reality.
- **33** **Flamenco** revs up **Web** services management platform.
- **34** **Scott Bradner:** Protecting the public from innovation.

Service Providers

- **37** **NaviSite** lures spam haters with managed service.
- **37** Messaging security services vendor lands funding.
- **39** Router sales signal carrier activity.
- **39** **Johna Till Johnson:** Sanity clauses for contracts.

IT offshore outsourcing hot spots.
Page 57.

Features

Technology INSIDER

Internet security

The Internet Danger Zone: How dangerous is the Internet these days? Our two-week slice of Internet activity shows where attacks are coming from, how hackers are looking to get into corporate networks and what they're after once they're in. **Page 48.**

Who's that knocking at the network door? Tel Aviv University's 10,000-node network was scanned for open ports 96,000 times in two weeks from locations in 99 countries. Of those, 85,000 scans resulted in hackers subsequently coming back and attempting to wreak some havoc. Because most were random IP address scans, could this just as easily have been your network. **Page 49.**

What do they want? With Internet security alerts tripling since January, sorting the Internet background noise from the potentially dangerous hacker probes and prods on the Ohio regional ISP we tracked for two weeks was not an easy job. But in the end we found that hackers generally are looking to hit machines that they can then use as spam relays, to store illicit files and to control in order to launch future attacks. **Page 50.**

The ROI of network security Putting an ROI number on products that prevent a hack attack. **Page 54.**

Technology Update

- **43** **SATA** reduces storage costs.
- **43** **Steve Blass:** Ask Dr. Internet.
- **44** **Mark Gibbs:** Store my data and make it snappy.
- **44** **Keith Shaw:** Tiny mouse, hidden keyboard.

Opinions

- **46** **Editorial:** Let Fusion be your resource.
- **47** **Chris Shipley:** Mobility changes everything.
- **47** **Winn Schwartau:** DefCon: All in good fun.
- **76** **BackSpin:** Solutions to spam.
- **76** **Compendium:** SoBig causes big headaches.

Management Strategies

- **57** Taking **IT** offshore: Where are the hot spots for offshore outsourcing?
- **66** Career classifieds.

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Weblogs

Wireless revolution? Hah!

Senior Editor John Cox analyzes a recent spate of reports on the wireless market and concludes there will be no wireless revolution.
DocFinder: 7433

Customer service? Not exactly

Senior Editor Denise Pappalardo has a rough time with AT&T Wireless — and winds up taking her business elsewhere.
DocFinder: 7434

Seminars and events

The New Data Center: Powering the Enterprise

The data center is the driving force of the enterprise, rising to take control through consolidation and virtualization, automation and efficiency. If your data center isn't fully metered, accountable and effective, don't miss this Network World Technology Tour event. The event is free to qualified professionals.
DocFinder: 6646

Columnists

Compendium

Monitoring e-mail use in the name of science
Fusion Executive Editor Adam Gaffin points you toward an interesting paper that attempts to gauge the impact of answering e-mail on worker productivity. **DocFinder: 7435**

Wireless Wizards

Preventing wireless snooping
The Wizards help Alex from Pittsburgh prevent eavesdropping. **DocFinder: 7436**

Telework Beat

eCommute, interrupted
NetWorker Managing Editor Toni Kistner wonders if the Global Environmental and Technology Foundation can get the Federal telework pilot on track before time runs out.
DocFinder: 7437

Small Business Tech

Forming a NetWare exit strategy
Columnist James Gaskin says you might not need one. Then again, you might. **DocFinder: 7438**

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News

Bits

The patch king

■ Seems like every week brings some new Microsoft patches. Last week was no different. The company released a patch for a number of flaws in its Internet Explorer Web browser, including two it rated critical for some versions of the browser, which could let an attacker take control of a user's computer. It also released a patch for a flaw, rated important, in the Microsoft Data Access Components (MDAC) element of Windows. The critical flaws affect Internet Explorer versions 5.01, 5.5, 6.0 and 6.0 SP1 (6.0 with Service Pack 1 installed), and could let an attacker run arbitrary code on a user's system if the user visited a Web site or read an e-mail message in HTML designed to exploit the flaw, Microsoft said. Microsoft urged systems administrators to install the patch, described in Microsoft Security Bulletin MS03-032 (www.nwfusion.com, DocFinder: 7357). The patch brings together all previously released fixes for the affected versions of Internet Explorer. In a separate security bulletin, MS03-033 (DocFinder: 7358) the company warned of an important vulnerability, its second-highest danger rating, in the MDAC element of Windows. The flaw in MDAC could let an attacker run arbitrary code on a vulnerable system — but to do so, he would need to set up a fake SQL server on the same subnet as the target system, Microsoft said. It encouraged customers to install the patch, which also includes a fix for an earlier vulnerability, reported in security bulletin MS02-040.

The patch king (runner-up)

■ Trying to keep up with Microsoft in terms of security flaws discovered on a weekly basis, Oracle last week warned customers about security holes in versions of its Oracle 9i Database Server. The company released a software patch and Security Alert to fix "a set" of buffer overflows in the XML Database component of Oracle 9i. The XML Database lets Oracle customers have queries to the Oracle database returned in XML format. The vulnerability affects Oracle 9i Database Server Release 2. Customers running Release 1 or earlier versions of the 9i Database Server are not affected, the company said. A "knowledgeable and malicious" Oracle user could exploit the vulnerability to launch a denial-of-service attack that disrupts the Database Server's operation or take control of an active user session on the Database Server, Oracle said. While the company said there were no interim workarounds that could be used before the patch is applied, customers who are not using the XDB features could disable XDB by modifying 9i Database Server configuration.

Oracle eyes grid

■ When it's not fixing patches, Oracle said last week it would add grid-computing capabilities to a new version of its application server software, part of a broader effort to revamp its entire product line around the utility computing model. Analysts say the goal is worthy but don't see customers rushing to build grids just yet. Oracle isn't saying when it plans to ship the upgrade but already has a new name for it: Application Server 10g. Grid

■ The Good The Bad The Ugly



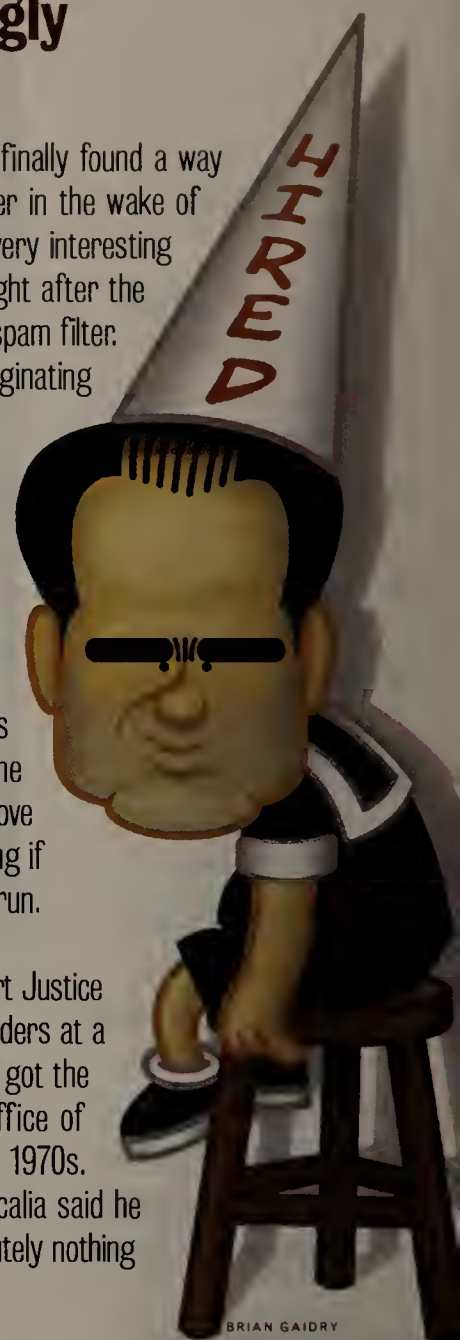
Silver lining? Well, perhaps we've finally found a way to stop spam. This note came from a reader in the wake of the big blackout earlier this month: "It was very interesting to come into work on the West Coast the night after the big blackout and find almost no spam in the spam filter. Leads me to believe most spam must be originating in the Northeast."



All eyes on HP. HP last week swung to a third-quarter profit and posted slightly better revenue than a year ago, but the company still disappointed Wall Street and saw its stock get whacked by 10% the day of its financial announcement. "The third quarter is always tough, but we still should have done better," says CEO Carly Fiorina, whose every move continues to be scrutinized by those wondering if HP's buyout of Compaq will work in the long run.



How to land a job. Supreme Court Justice Antonin Scalia joked with telecom industry leaders at a recent summit in Aspen, Colo., about how he got the job of general counsel in the president's Office of Telecommunications Policy back in the early 1970s. According to an Associated Press report, Scalia said he got the job "principally because I knew absolutely nothing about telecommunications." ➤



computing promises to let businesses treat groups of servers and storage equipment as if they were a single large machine, and to assign computing resources to applications on an as-needed basis. Proponents, which also include HP and IBM, say it will help businesses save money by letting them use computing resources more efficiently.

E-mail scam warning

■ Citibank last week warned customers about fake e-mail circulating on the Internet that claimed to be from the bank but that was actually an attempt to scam customers into providing sensitive account information. The fake e-mail warned customers that their checking accounts could be blocked if they didn't provide confidential information. This type of scam — sometimes called phishing — also hit Bank of America recently. Citibank said it's working with law enforcement to track down the source of the fraudulent e-mail.

That's fabless!

■ Engim, a fabless silicon design start-up that has designed a chipset to boost the capacity of wireless LAN access points by up to 50 times, has raised \$18.5 million in a second round of equity financing. The latest cash infusion came from Engim's existing investors, Matrix Partners and Bessemer Venture Partners, plus two new investors, Benchmark Capital, which led the latest round, and Adams Street Partners. First-round funding in late 2001 netted \$16 million. Money from the second-round funding will be used to integrate the Engim chipset with WLAN access points, and to expand the chip technology into unnamed new markets and applications.

AOL IM video 4 U

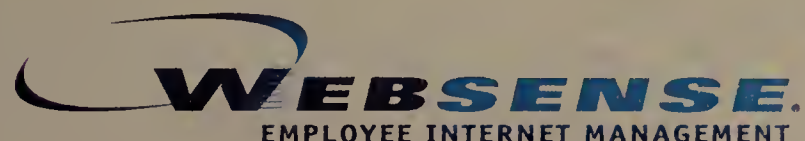
■ The FCC has lifted a restriction preventing AOL Time Warner from offering streaming video services over its instant-messaging software. The restriction "no longer serves the public interest, convenience, or necessity," the FCC said. The agency noted that AOL Time Warner competitors such as Yahoo and Microsoft have gained ground in the instant-messaging market and have introduced their own advanced video services over instant messaging. The FCC imposed the restriction as a condition of AOL's January 2001 marriage with Time Warner because it feared that AOL's dominance in text-based messaging combined with Time Warner's cable and programming assets would give the merged company an unfair advantage in the advanced instant-messaging services market.

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NASDAQ: WBSN

Show to feature VoIP, voice-recognition gear

■ BY PHIL HOCHMUTH AND JOHN COX

There are two things that always need improvement: airline food and telephone customer service. To address the latter issue, several new products are on tap at this week's International Call Center Management Conference and Expo in Chicago.

Products being rolled out at the show aim to improve how customer contact centers operate using voice recognition and IP telephony. Vendors say companies with big customer service centers can cut costs by voice-enabling many customer service applications, while IP telephony promises a more flexible call center infrastructure.

At the show, Intervoice is scheduled to announce its Omniva Voice Framework. The vendor says Omniva could let a company voice-enable any of its Web data, which could eliminate expensive data conversion projects that might have been required to add speech access with proprietary voice-recognition platforms.

Omniva is an application development tool that uses VoiceXML and Speech Application Language Tags (SALT) technology to link Intervoice's existing voice-recognition product with Web-based data. VoiceXML and SALT are developing Web services standards used to enable transactions between Web-based applications and data stores. The software also could be used to link data with other voice recognition front-end products.

Continental Airlines is one company that is sold on voice recognition. The airline has installed a speech recognition service based on technology from ScanSoft (an Intervoice competitor that also will exhibit at the ICCM show). Travelers within the U.S. can call a toll-free number and select voice-based information services. When a caller presses the corresponding number, automatic call distributors (ACD) at the Continental call center transfer the call to the ScanSoft server, which begins a voice conversation with the customer. Customers can ask questions on flight arrival and departures and other basic information.

Improved customer service

Although he could not speak to Continental's in-flight cuisine, Omar Alvi, manager of speech and wireless programs for the airline, says the ScanSoft technology has greatly improved customer service. Call center agents now can handle more complex service tasks, instead of just reading flight data off

screens to callers.

There were reservations about replacing customer-facing agents with a computer, but the technology has evolved to the point where it's not a concern, Alvi says.

"Five or 10 years ago, speech recognition from a pure technology standpoint might not have met our customer expectations," he says. "But it has evolved into a very powerful tool."

In the area of call center infrastructure, Aspect Communications is set to unveil a new release of its core product, Aspect Call Center, along with a

repackaging of some products for small to midsize call centers. Aspect also will announce its Uniphi Solution Suite, an all-IP-based call center product.

The Uniphi suite will create a group of applications, management features, reports and development tools that span a range of call technologies, including e-mail, chat and interactive voice response telephone systems. No release date or pricing has been set.

Joining hands

3Com and Aspect also are announcing a joint product development and marketing deal whereby the Uniphi suite

will be integrated with 3Com's latest large-enterprise IP PBX platform — a repackaged product from its carrier-class CommWorks softswitch offering, which can scale to more than 10,000 phones.

Aspect says the deal with 3Com ends the company's own venture into IP-based PBX and ACD call control platforms. Aspect will continue to develop and support its TDM ACDs. Its Uniphi software also will work with Aspect's TDM-based switches.

The key change in Version 9 of Aspect Call Center is the new Uniphi Connect card, which is plugged into a slot on the back of an Aspect TDM-based ACD to connect with an IP PBX. With the card, call center agents on public switched telephone networks or IP networks can use ACD-based services.

The Iphinity line, yet another new offering from Aspect, is aimed at call centers with 50 to 150 agents. The Iphinity CallCenter and Iphinity Workforce Management software are subsets of the enterprise versions of these products. In both cases, Aspect has preconfigured a range of settings and limited some options. This approach keeps down the price and speeds up deployment.

The CallCenter starts at \$199,000 for 48 agents. Pricing for Workforce Management has not been finalized. ■

Hot topics

Some key technologies on display at the International Call Center Management Expo will include:

- **Voice recognition**
With features such as VoiceXML and Speech Application Language Tags for setting up customer self-service applications through speech commands:
Customer: "I'd like to change my hotel reservation."
Speech server: "OK, I can help you with that."
- **IP telephony**
IP voice transport could extend call center applications integrated with voice to almost anywhere:
Work-from-home agents could cut down support costs.

FCC sets telecom competition rules

■ BY GRANT GROSS

The FCC last week released a long-awaited final order governing competition among telephone companies and ISPs, but legal challenges almost certainly are on the way.

The 576-page order — known as the triennial review — is designed to set the rules on what parts of their networks the four regional Bell operating companies must share with competitors at discounted prices. The order largely added details to a decision commissioners made Feb. 20, when the FCC voted to let the Bells refuse to share new fiber-based broadband networks with competitors.

FCC Chairman Michael Powell, who was outvoted 3-2 in the commission's February decision, cheered the final order for letting the Bells stop offering discounted line-sharing services to competing ISPs offering DSL service to residential customers. That decision will let the Bells invest in new broadband Internet services, including fiber to homes, he said in a statement.

However, Powell criticized the commission's decision to let state public service commissions set the discounts that the Bells must offer for their switching facilities. Powell said the decision preserves FCC rules that have twice failed in court challenges since Congress passed the Telecommunications Act of 1996.

"The majority's switching decision is bad law, bad policy and ultimately bad for consumers," Powell wrote in his statement about the order. "After one sorts through the legal contortions of the majority's switching decision he will find an order remarkably similar to the prior two fatal decisions — one that preserves [network sharing] as the favored mode of competition."

The Bells argue they shouldn't have to prop up their competition by offering parts of their

phone networks at discounted prices. They argue that competitors should have to build their own networks or pay full price to use the Bells' equipment.

But competitors such as AT&T and MCI contend that without the discounts on the Bells' so-called unbundled network elements (UNE), competition would dry up and the Bells would gain regional monopolies on phone and phone-line-based Internet services. The Competitive Telecommunications Association says it was pleased with the FCC's decision

to preserve switching discounts but concerned about the decision on DSL.

The FCC's February decision left it up to state public utility commissions to decide whether the Bells still should offer local phone switching facilities to competing carriers at discounted rates in the home and small-business markets. The order

lets the Bells end discounts for switching facilities in the large business market. But the written order, which can be viewed at www.nwfusion.com, DocFinder: 7356, introduces a new method of deciding when the Bells must offer their UNEs at discounted prices to competitors.

States will have nine months after the order goes into effect to decide whether to require the Bells to offer switching facilities to competitors at discounted rates.

The FCC order gives ISPs three years to phase out their use of discounted line sharing from the RBOCs.

FCC critics say the six-month delay between the FCC vote and the final order has postponed investment in telecom companies and services. FCC staffers say the delay was unavoidable given the complexity of the new rules and the two previous court rejections of FCC attempts to create the rules.

Gross is a correspondent with IDG News Service's Washington, D.C., bureau.

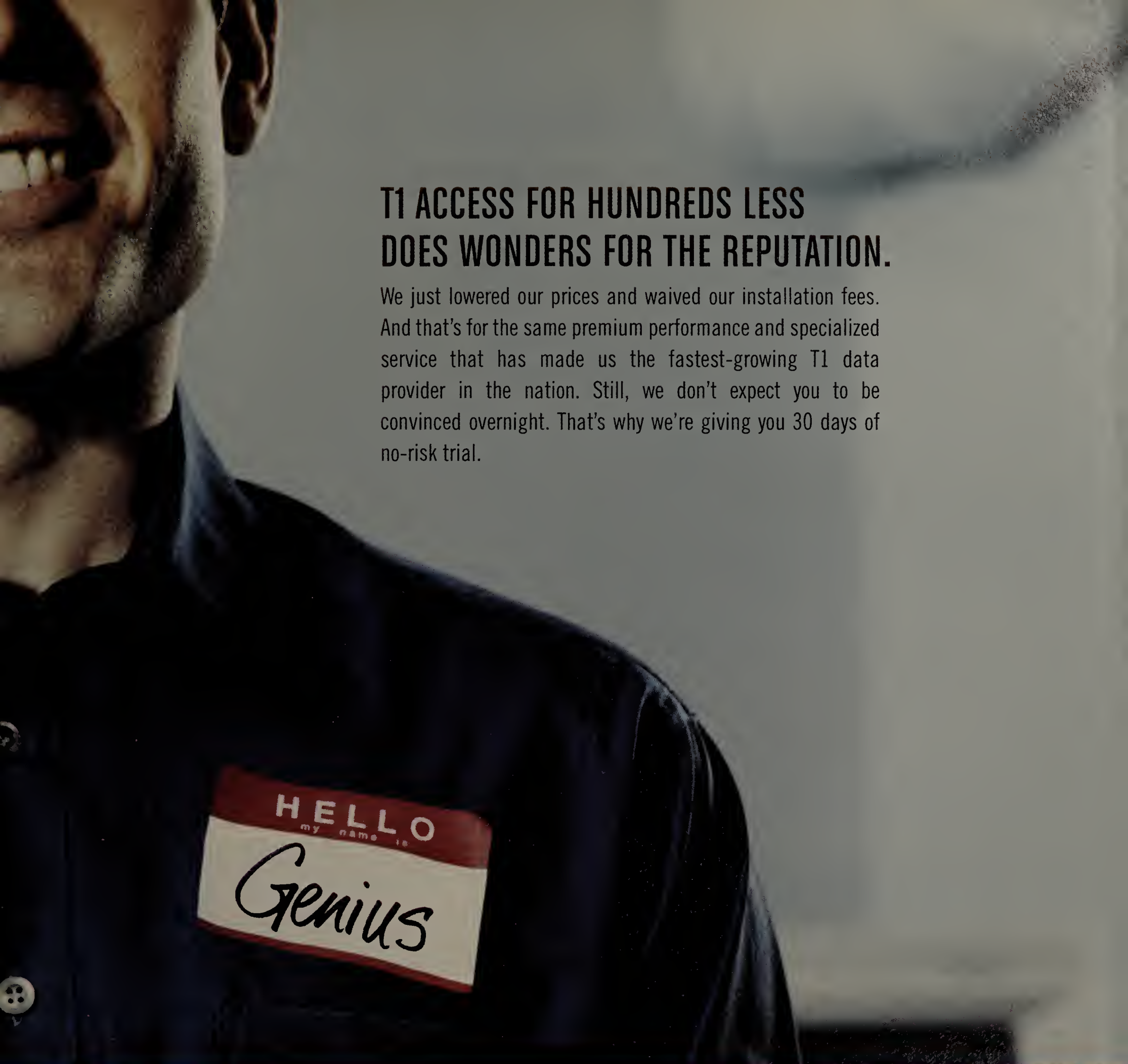


FCC Chairman Michael Powell says the new regulations will let the Bells invest in advanced broadband Internet services.



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SCO show used to defend fight with IBM

■ BY DENI CONNOR

LAS VEGAS — If SCO users and resellers went to last week's SCO Forum looking for some clarity in the company's battle with the Linux community and IBM — they got little. What they got was the atmosphere of a circus sideshow and yes, some product directions.

SCO focused on its lawsuit against IBM, seeking to parry criticism of its actions in what many see as an attack on the open source community. The company handed out T-shirts that read 'Got Unix in your Linux?' SCO played on the emotions of its resellers, who want to make money selling software and prefaced every presentation as to how things will be for SCO users if the judge throws its case out of court.

Separate product road map presentations highlighted enhancements SCO will make to its OpenServer and UnixWare operating systems as well as a new version of Unix System V Release 6. All new versions of SCO's products will be Web-enabled and include programs such as Tomcat, Apache Web server, Mozilla and Samba support. A SCOx initiative adds Web services capabilities to the company's products.

Users say they came to the SCO Forum to try to understand what the company that makes the products they use is doing and to see if the company has future product plans. "I came to find out more about the lawsuit since a few customers have expressed concern as to where things might go," says Thomas Madison, CEO and senior engineer for Scatterpoint Technologies Group, an IS consultant for small and midsize businesses in Portland, Ore.

"Some customers are on the fence right now regarding whether to go to Windows," says Madison, who has attended SCO Forum for the past 14 years. "This might drive them that way if they sense uncertainty about the future of SCO and its products, so I want to be able to reassure them that things will be OK."

"Customers originally called us and asked 'what's going on, we're worried about this,'" says Stephen Kyriakos, a director at Integra Solutions, a database consultancy. "SCO right now is a big question mark. As a company, are they going to be around, will they be smushed by IBM, what exactly is going to happen?"

Although concerned about SCO's legal entanglement, other users and resellers also wanted to be re-assured that SCO planned to further enhance its OpenServer and UnixWare products.

Resellers play an immense role in their customers' networks — they fulfill the IS function for small and midsize businesses, many of whom do not have IT staff to manage their networks.

Linux advocate claims SCO evidence flawed

The SCO Group is 0 for 2 in its efforts to prove that its Unix software was illegally copied into the Linux operating system, according to Linux advocate Bruce Perens, who last week said he traced a second example of SCO's disputed code and that it was lawfully included in Linux.

The revelation came the day after Linux enthusiasts claimed to have proved that SCO's first public example of copyright violations in Linux was illegitimate.

SCO revealed the two snippets of code during a keynote address at its annual SCO Forum user conference in Las Vegas last week. German publisher Heise published the first snippet, which SCO claimed was copied line by line from Unix into Linux. The second example, which SCO claimed was an "obfuscated" — or neatly identical — copy, was obtained from SCO by IDG News Service.

At the keynote, Chris Sontag, SCO's general manager and senior vice president of SCOsource, said the snippets were just two examples of many intellectual property violations his team found in the Linux source. "We've been able to find these little needles in a Mount Everest-sized haystack," he said.

But these first two examples can be traced to the open source Berkeley Software Distribution (BSD) Unix, and not to SCO's AT&T Unix source code, and both are legitimately included in Linux, Perens said.

"These are probably the best examples that SCO has to show, and they're awful," Perens said. "They would not stand up for a day in court."

In March, SCO sued IBM, claiming that Big Blue had inappropriately contributed code to Linux. Since then, SCO has widened its allegations about the nature of the improper contributions to Linux, and now maintains that source code belonging to SCO has been copied line-by-line into the Linux operating system.

SCO was countersued by IBM in early August, and also has been sued by Red Hat.

"The obfuscated code example is not SCO's property," Perens said. "It was developed by the Lawrence Berkeley Lab in 1993, under funding of the U.S. government. The code was added to SCO's version of Unix in 1995 or 1996, he maintained. "SCO took [the BSD] source code, lost the attribution, and now believes it's theirs."

SCO disputed Perens' claims. "We're the owners of the Unix [AT&T] System V code, and so we would know what it would look like," he said. "Until it comes to court, it's going to be our word against theirs."

Perens' code analysis can be found at www.nwfusion.com, DocFinder: 7352.

— Robert McMillan, IDG News Service

"Last year at SCO Forum I complained about a lack of features in OpenServer and UnixWare," says Boyd Gerber, CEO for SCO UnixWare and OpenServer reseller Zenez in Midvale, Utah. "I came to SCO Forum to see if they have fixed all I've asked about."

"We are glad SCO is not solely focused on the lawsuit," Kyriakos says. "They still have plans going forward, they still are going to do product releases. They are not just betting 100% on the lawsuit."

SCO CEO and President Darl McBride highlighted his company's complaint against IBM for copyright infringement to

the 500 attendees at the James Bond-themed SCO Forum 2003.

He likened what SCO is doing to a Bond movie. "We're off fighting for the right principles like Bond did," McBride said. "We find ourselves in the midst of the battle of the century. We are subject to attack. We've heard people may picket on Las Vegas Boulevard. I can see them carrying 'SCO to Hell' signs."

McBride and Chris Sontag, senior vice president and general manager of the SCOsource division, explained and exhibited publicly for the first time scraps of Unix

SVR5 code they say have made their way into Linux.

"Has Unix found its way into Linux?" McBride asked. "Absolutely, it has."

Interjecting some seriousness into the sideshow atmosphere, Sontag said the majority of the code they have cited as infringing its Unix SVR5 license was contributed to Linux by IBM. He says the company's lawsuit against IBM revolves around the notion of derivative works — the idea that code IBM developed from Unix must be kept confidential and not shared with others as IBM, and other vendors such as SGI, have allegedly done.

Linux faithful have proposed taking out the infringing code and restoring Linux to pre-2.4 kernel shape.

"If there is infringing code in the Linux kernel, our community wants no part of it and will remove it," says Eric S. Raymond, an open source spokesman in a memo issued last week.

McBride, however, said this is not enough.

"[Taking out the infringing code is] the equivalent of taking a 60-story building and ripping out the middle 30 floors," McBride said. "The top half would come down and just magically match up with the bottom half. That's the order of magnitude of problem we are dealing with here on the derivative works side." ■

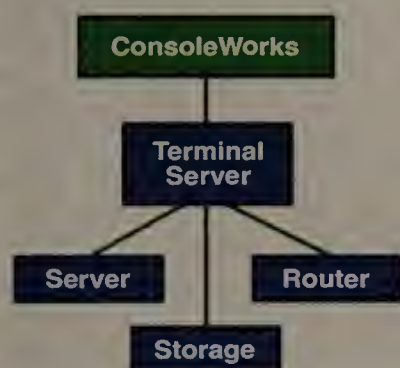
SCO's product road map

SCO promises a variety of new features in its next versions of OpenServer, UnixWare, SCO Unix 9 and Unix System V Release 6.

SCO OpenServer (Project Legend) Q4 2004	SCO UnixWare Q1 2004	SCO Unix 9 Q1 2005	Unix System V Release 6 Q4 2004
• Large file system support. • Parallel threads. • Java. • Samba3. • Apache, Mozilla, SCOx Web Services. • 32-bit File Allocation Table. • New USB, Host Bus Adapter (HBA) support. • IPSecurity, VPN, PAM.	• New USB, HBA and network interface support. • IPSec, Pluggable Authentication Modules (PAM), VPN. • Tomcat, PHP, Simple Object Access Protocol (SOAP), Perl, Mozilla, Java 1.4.2. • OpenLDAP. • SCOx Web Services.	• Runs SCO OpenServer, UnixWare, Windows, Linux Standards Base binaries. • 64-bit operation. • SCOx Web Services. • SVR6 compliant. • Universal Driver Interface.	• SCOx Web Services. • Windows support. • Java 2 Platform Enterprise Edition, XML, SOAP, Web Based Enterprise Management. • Remote Web management.

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Worm outbreaks saturate networks

■ BY ELLEN MESSMER

Last week went down as one of the worst computer security weeks ever, as a spate of new worms crippled corporate and government networks that rely on Microsoft software.

The attacks, which came a

week after the damaging Blaster (or LovSan) worm struck, included a variant on that intruder and with another worm designed to save users from Blaster but instead wound up clogging networks (see graphic).

Meanwhile, a spinoff of the SoBig mass-mailer worm, tricked

victims into opening attachments to so that it could grab their Outlook address book to mail itself again. VeriSign reported that SoBigF, programmed to send mail traffic through one of the company's root DNS servers, caused a 20-fold spike in traffic between Tuesday and Wednesday. (Security watchers warned Friday, just before press time, that SoBig.F carries a Trojan it might use to attack an unknown target later that day.)

Among those networks feeling the pain last week was the Navy Marine Corps Intranet (NMCI), used by about 100,000 personnel. It was saturated for three days with scanning caused by Welchia, a worm with a mission to use Blaster-like techniques to break into computers to disinfect machines hit by Blaster and then patch them. Welchia infected tens of thousands of NMCI computers.

"It was ping-pong away, trying to grab a patch from Microsoft," says Capt. Chris Christopher. "The traffic was getting too heavy, and it affected network performance."

NMCI desktop computers weren't affected, but network capacity wasn't restored in large part until last Thursday. The massive cleanup effort involved patching machines for the Microsoft vulnerabilities Welchia ex-

Microsoft ponders automatic patching to boost security

In the wake of a widespread Internet worm, Microsoft is weighing options to get more users to secure their computers, including automatically applying security patches to PCs remotely.

"We are looking at a range of options to get critical updates on more systems, from finding ways to encourage more people to keep their systems up to date themselves to where it is done automatically by default for certain users," says Matt Pilla, senior product manager for Windows at Microsoft.

Microsoft does not plan any immediate changes to the way it delivers security patches, but the company also does not intend to wait until the release of its next operating system to improve it, Pilla says.

"This is a priority for us. There are a lot of things we can do during the Windows XP time frame to help people make their PCs more secure," he says. The successor to XP, code-named Longhorn, is expected to be out in 2005 or 2006.

Microsoft delivers software patches through its Windows Update Web site and through update software in XP, Windows 2000 and ME. The software does not download and install patches by default, but asks a user to select from various options, including alerts when an update is available.

"Giving the user the ability to control auto update is important to us," Pilla says. "One of the things we are working on is a balance between keeping systems up-to-date and giving users the control over their systems."

On July 16, Microsoft issued a critical security update that fixes a serious security vulnerability in Windows. The company urged customers to patch. Many apparently ignored the warning; the Blaster worm that started spreading weeks later was able to infect hundreds of thousands of computers by taking advantage of the vulnerability.

Russ Cooper, surgeon general of TruSecure and moderator of the discussion list NTBugtraq, is an outspoken critic of Windows Update. Nevertheless, he is in favor of automatically delivering security updates.

"I think it is a great idea, they should have done it ages ago," he says. "We will scrutinize the way they do it. I applaud them for being willing to be put under such a microscope for something they believe the world does not trust them to do."

Microsoft has no choice: It has to take patching in its own hands, says Rob Enderle, principal analyst at Enderle Group. "They absolutely have to create a program where patches are applied automatically," he says.

People worried about giving Microsoft control over their systems should weigh the alternative, Enderle says. "People really don't want to give Microsoft access, but if they don't, then the patches don't get applied timely. It is about relatives, do folks trust Microsoft more than they trust a hacker?"

— Joris Evers, IDG News Service

Under attack

Four new worms and viruses created havoc on computer networks last week.

Virus/worm	Description
Lovsan.D	Variant of LovSan (also known as Blaster, MSBlast, LoveSAN) with an attachment called mspatch.exe instead of msblast.exe. This worm exploits the same Microsoft remote procedure call (RPC) vulnerability; its scanning causes network congestion.
Welchia (also known as Nachi)	Uses RPC hole to infect unpatched machines running Microsoft software by exploiting the WebDAV vulnerability, with the intent of killing Blaster worm infestations and downloading the Microsoft patch. But it causes network congestion through scanning.
SoBig.F	Fifth variant of the SoBig. A worm first spotted in January, SoBig.F is a mass mailer that tricks victims into opening attachments, such as "Wicked Screensaver," then installs a backdoor, while grabbing directory addresses to mail itself to new victims. It clogs mail servers and mailboxes.
Dumaru	A mass-mailer worm that fakes its way into a user's trust as spoofed mail from support@microsoft.com, but when the attachment is opened, installs a backdoor that lets the virus writer control the machine.

ploited, as well as ensuring anti-virus signatures were placed.

The NMCI uses Symantec's anti-virus products, but Symantec didn't have the signature update for Welchia ready until several hours after it hit, Christopher says.

Blaster hits airline system

Separately, a variant on the Blaster virus affected about half of Air Canada's phone-reservation system and some airport check-in operations last Tuesday, even causing some flights to be delayed or canceled. CSX, the third largest railroad company in North America, also blamed worms for creating transportation delays.

According to CSX, the worm outbreaks mainly hit its network-supporting applications used for dispatch and signal systems operated by the CSX Transportation division. The network saturation caused CSX to halt passenger and train traffic, including morning commuter service into the Washington, D.C., area.

In light of the new attacks and the Blaster infections, Microsoft has started a fresh dialogue about how it might change its patching strategy, at least when it comes to home computers outfitted with XP (see related story, left).

That operating system has a feature to automatically notify an end user that a software patch is

needed and apply it.

A Microsoft spokesman says the company is pondering whether to alter this feature in future releases so that it would work by default. The company says it believes this method would be more effective instead by applying the patch because warnings often are ignored.

Microsoft was looking for feedback on that idea, which it acknowledged could affect the corporate world where XP also is increasingly used.

In terms of the Blaster worm, which was programmed to continuously launch a denial-of-service attack against the Microsoft windowsupdate.com URL on Aug. 16, the company disabled the targeted link to preserve the main portion of the site. However, that URL won't be available for the foreseeable future.

As to the question of Dumaru — a worm launched last week that pretended to be from Microsoft but carried a dangerous Trojan as an attachment — Microsoft says it never sends out attachments in any official e-mail in a public mass mailing. ■

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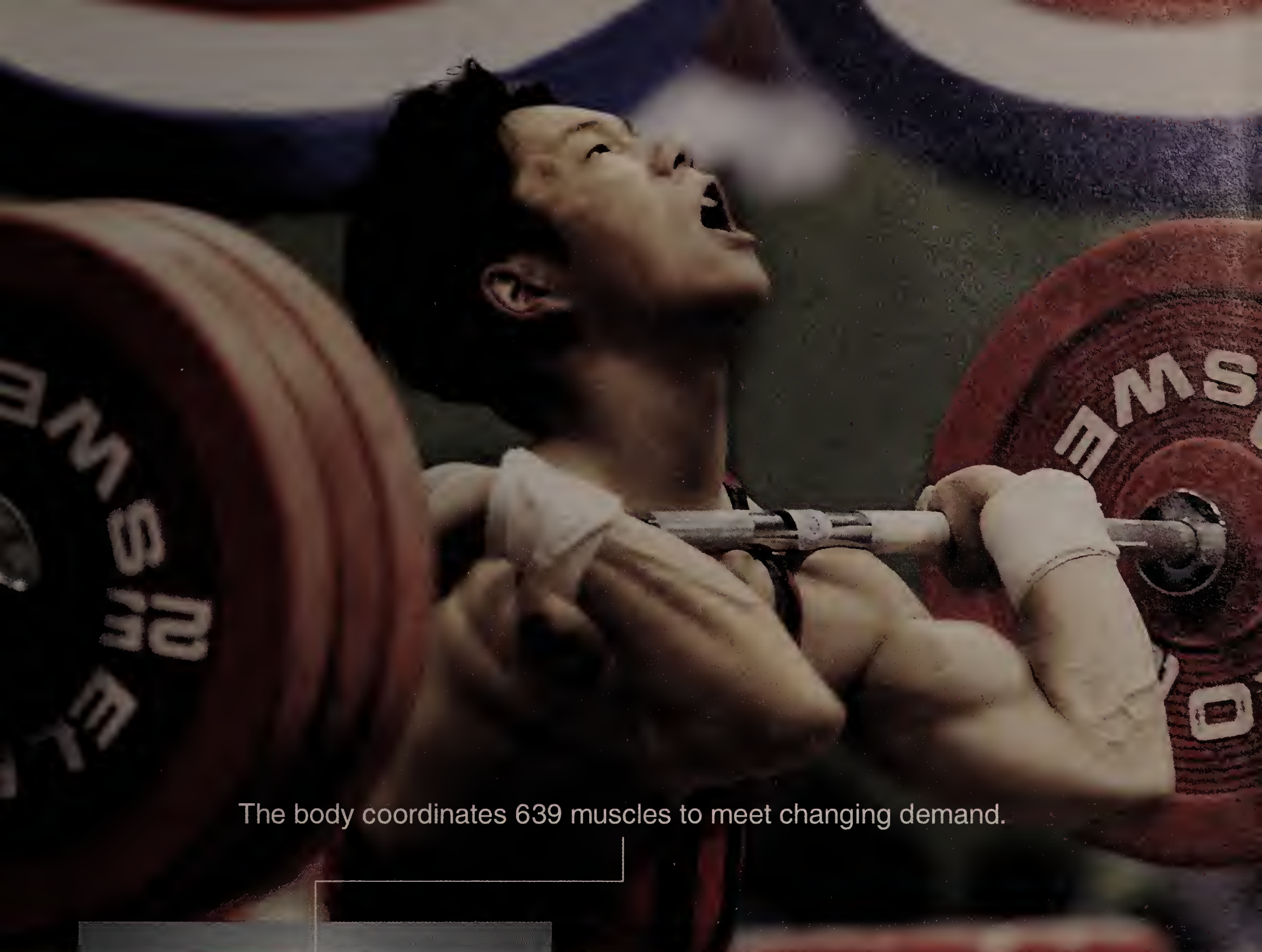
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Micromuse adds to mgmt. arsenal

■ BY DENISE DUBIE

Micromuse announced last week it has acquired a former OEM partner for \$23 million in a deal designed to complement its strength in network management with applications and system management capabilities.

The maker of the Netcool service assurance software suite is buying Network Harmoni, an Australian company that develops agent software for managing systems and applications. Under an OEM agreement that went into effect in April 2002, Micromuse has used Network Harmoni's agents in its Netcool/System Service Monitors and Netcool/Application Service Monitors, both of which sit on managed devices to collect data and feed it to Netcool's administration console.

Micromuse executives say the acquisition will give the company more control of agent development and help it deliver products to customers more quickly. Micromuse says 90 of its customers have Network Harmoni technology installed. Network Harmoni says its software is used in more than 5,000 customer networks worldwide, which gives Micromuse a possible entrée to even more sites. Micromuse also gets Network Harmoni's Op-Center product, a lightweight IT management system tailored for small and midsize companies.

Micromuse, which closed a successful third quarter in June garnering \$33 million in revenue, also has opted to acquire technology in the past.

The company in June 2002 bought RiverSoft for \$63 million, and company executives say Micromuse will continue to consider acquisition an option to new technologies. When it reported earnings, Micromuse had about \$212 million in cash and investments, had recently won 45 new customers and maintained a 90% renewal rate among existing customers.

Craig Farrell, Network Harmoni CEO and CTO, now joins Micromuse as its CTO. Micromuse recently added former Juniper executive Lloyd Carney as its chairman and CEO. ■

Site: Lessons from leading users

Baylor University signs up for difficult course on WLAN security

■ BY ELLEN MESSMER

Baylor University learned about wireless LAN security in the school of hard knocks. Three years ago, Baylor began installing 270 Enterasys Networks wireless access points across its Waco, Texas, campus in libraries, classrooms and dorms so students and faculty could access the campus LAN from computers outfitted with 802.11b WLAN cards. That was the easy part, according to Baylor's IT staff. But finding a way to add authentication to enable unimpeded wireless access has meant a crash course in security technologies that hasn't yet ended.

In fact, 802.1x, the authentication technology Baylor just started using last month, is causing the WLAN network to crash from time to time. "We're forcing the wireless access points to do more than we had them do in the past," says Bob Hartland, director of IT servers and networking systems at Baylor.

Based on an IEEE standard, 802.1x lets a WLAN user's encrypted password be sent from an 802.1x-enabled laptop across the Enterasys access points, which support 802.1x, to a RADIUS authentication server included in Windows Server 2003, which Baylor uses (see graphic).

While 802.1x authentication, which involved this end-to-end, back-and-forth hand-off via 802.1x, works, it has put an unexpected processing strain on the WLAN access points, causing their radio-frequency power to fail. For that reason, Baylor now dispatches four technically minded students to check and make adjustments on the university's 270 WLAN access points each day.

"802.1x is more complex to troubleshoot than what we had before," says Scott Day, Baylor's manager of network services. The university also is reconfiguring the access points to try to sort out the problem.

Baylor IT staff had been waiting patiently for two years for the much-ballyhooed IEEE 802.1x authentication standard, along with Wired Equivalent Privacy (WEP) encryption, to appear in products.

Before 802.1x, campus IT staff tried a number of other experiments in wireless encryption and authentication. First came a limited VPN deployment, next was a homegrown client to authenticate campus users to the access points.

The homegrown system, which Baylor viewed as the interim step while it waited for vendors to implement 802.1x, was based on a design detailed in a paper published by the National Aeronautics and Space Administration.

"It was a gateway based on OpenBSD,

require client-side certificates, only passwords. It's important to have the 802.1x-based variant mutually supported in the WLAN card, the access point, the client software and the authentication server, because the authentication process crosses these points.

In the university's viewpoint, the moment when all the stars aligned on that score arrived in the spring when Microsoft released 802.1x PEAP client code that can be used with XP and Service Pack 1 for Windows Server 2003.

"We're pretty much a Microsoft shop, so we decided to take this course," Hartland says. "We had been hearing about 802.1x for years."

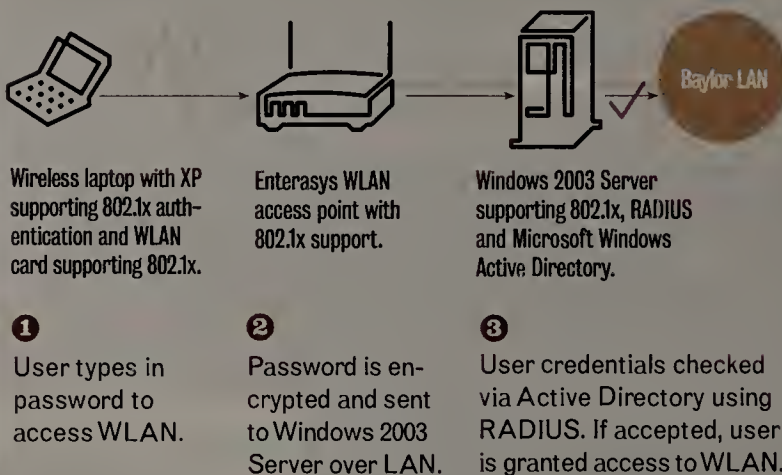
Baylor bought a site license for XP that would be available for all its students, faculty and staff. For non-Windows users, Baylor licensed the 802.1x-based client software from MeetingHouse Data Communications for Macintosh, Linux and PocketPC. But because campus users have moved to 802.1x based on PEAP, there have been issues to deal with above and beyond the strain that 802.1x authentication put on the Enterasys WLAN access points.

For example, not all WLAN cards have a hook into 802.1x, as the XP client software needs, according to Baylor's IT staff. The Enterasys WLAN card and a card from Orinoco Wireless (which was purchased by Cisco) haven't been a problem, but many other cards don't seem to have the kind of "zero-config XP interface" that makes it easy to use XP for 802.1x authentication, Allen says.

Although Baylor's IT staff waited a long time for 802.1x on the WLAN and find it's resulted in some tough problems, they aren't cynical about it. The staff are confident they will sort out what they call the "signal-strength issue" with the WLAN access points, perhaps by adding more access points. And the next step will be working on more complex role-based access to network resources for students and faculty based on security policy. "We're just waiting for it all to settle down," Hartland says. ■

Baylor boosts WLAN security

Baylor University has begun using 802.1x authentication technologies to ensure security across its growing WLAN.



[Secure Sockets Layer] logon and a Web browser," Hartland says.

But Baylor was waiting for 802.1x, described as a standards framework for wireline and wireless that can accept many extensions, such as public-key certificates and passwords. Baylor deemed client-side certificates too complex and expensive to deploy. The university wanted to be able to have each user's WLAN password be the same as the password to gain access to the Baylor campus LAN. That would minimize password administration. Two 802.1x variants, one called Tunnelled Transport Layer Security (TTLS) backed by Funk Software and Certicom, and the second called Protected Extensible Authentication Protocol (PEAP), backed by Microsoft and Cisco, offered the potential to do that, according to Jon Allen, Baylor's coordinator of IT security.

TTLS and PEAP provide mutual authentication and WEP re-keying but don't

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Expand offers WAN compression options

Two new boxes are designed to better match users' capacity needs.

■ BY TIM GREENE

Expand Networks last week announced new models of its WAN compression devices with capacity that can be upgraded gradually so customers don't need to keep buying new hardware.

The two new boxes, Accelerator 4810 and Accelerator 6810, fill gaps in the company's product line that forced some customers to buy higher-capacity devices than they needed. Now customers can buy a device that more closely fits their current needs and leaves the option to buy more capacity later.

Customers must buy at least two of the Expand devices and place one at each end of a WAN link that they want to speed up. The devices sit between LANs and WAN routers and compress traffic destined for WAN locations that also have Expand devices. The Accelerators can compress at different rates to match the bandwidth available on the line, so a 256K bit/sec Accelerator would be suitable for a 256K bit/sec line. Expand says its equipment boosts network throughput



Expand's Accelerator 4810 compresses at rates ranging from 256K to 6M bit/sec.

between 100% and 400%.

Before the two new boxes were introduced, Expand's Accelerator 1800 topped out at 256K bit/sec, and the lowest speed of the company's next-sized box, the Accelerator 4800, was 2M bit/sec. If a customer wanted to support a 512K bit/sec link, he had to buy a 2M bit/sec 4800. Now he could buy a 512K bit/sec 4810 for about \$5,000 less and still have the option to increase its capacity by paying a licensing fee.

O'Reilly Auto Parts in Springfield, Mo., has installed Accelerator 6810s at its headquarters and its back-up data center in Dallas to speed up a 12M bit/sec frame relay line between the two that was running at capacity, says Dave Steinle, systems management

team leader for O'Reilly. Now the connection runs at 75% to 80% of capacity, staving off the need for a bigger connection.

Without the Expand gear, the company was facing an additional 6M bit/sec in bandwidth at a cost of \$2,700 per month, Steinle says. With transaction data ever increasing, he says he expects that O'Reilly will have to buy more bandwidth at some point. When it does, he says Accelerator 6810s can be upgraded to handle the additional traffic.

Expand competes mainly against Peribit, whose gear is similar in function. But the companies say they use different methods to reduce traffic. If customers don't want to buy a dedicated compression device, they can implement compression on their routers, an option that might affect route performance.

Accelerator 4810 ranges in speed from 256K to 6M bit/sec and in price from \$4,000 to \$20,000. Accelerator 6810 ranges from 2M to 45M bit/sec and from \$15,000 to \$45,000. ■

Service manages Microsoft apps deployment

■ BY JUAN CARLOS PEREZ

Electronic Data Systems last week unveiled a service to manage the deployment of Microsoft desktop applications and system software in companies and government agencies.

Features of the offering, called myCOE (my Consistent Office Environment), include giving end users the flexibility to choose applications for their

desktop and a pricing model under which companies pay only for the services used, according to EDS.

EDS' services contrast with the traditional approach of giving machines with the same configuration and application setup to users who do different jobs. This rigid approach and lack of desktop customization inevitably leaves some users with less functionality and others with more than they need.

The new EDS managed service, which is based on desktop management software from Microsoft, has been designed for machines running the Windows XP operating system and Office XP and upcoming Office 2003 suites, says Carol Wyatt, global offering executive for EDS' Distributed Systems Service line. However, the service can be expanded to support other Microsoft and non-Microsoft applications and software, she says.

MyCOE delivers applications and desktop services from a Web portal. From there, end users can pick and choose applications from a list compiled and approved by their IT department.

That way, end users can configure their machines — desktop PCs, laptops, handheld computers

Companies pay for only the services and applications their employees use. This approach taps into an increasingly popular trend in IT

— with the software they need. They can drop and add applications as their needs change.

Companies pay for only the services and applications their employees use. This approach taps into an increasingly popular trend in IT of paying for software, hardware and services based on usage, just like one pays for utilities such as electricity and water. Big names such as HP and IBM have developed strategies for offering their clients "pay as you go" options.

EDS built its myCOE service around Microsoft's Solution Accelerator for Business Desktop Deployment (BDD) software.

Free and available for download now from Microsoft's Web site, Solution Accelerator BDD is a desktop management tool Microsoft says can reduce XP, Office XP and Office 2003 deployment tasks by 75% through automation. Solution Accelerator BDD comes with scripts and

templates as well as with documentation detailing best practices and guidance for deploying desktop applications and upgrades throughout a company.

Perez is a correspondent with the IDG News Service's Latin America bureau.

Corrections

■ The story "Chip vendor claims wireless breakthrough" (Aug. 18, page 12) should have identified Atheros Communications as one of the major players in the wireless silicon market.

■ The editorial "10G: Worth your attention" (Aug. 18, page 46) should have stated that 802.ae was standardized in 2002.



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Redefining Enterprise Mobility: Freedom that's IT Approved

As IT managers struggle to balance business connectivity demands with a secure IT environment, many turn to Nokia's portfolio of mobile connectivity solutions to get the job done.

Email is more than a business tool. These days, it's the backbone of how many corporations do business. And for many companies, business as usual demands that workers access vital information on an anytime, anywhere basis, and from a host of devices ranging from company-owned laptops to PDAs, mobile phones, and home PCs. Email is the mission-critical application for business information exchange.

Twenty-seven percent of today's workforce is estimated to be mobile and out of the office for at least one day every week. Mobility solutions can help boost productivity, as business users have increased flexibility to get their work done. However, mobility also presents a number of challenges for the IT department. CIOs and IT managers must struggle to meet the business demands wrought by mobile connectivity, while simultaneously solving the security concerns that come along with providing mobile workers constant access to corporate resources, regardless of the access device.

"It's a real balancing act for IT managers," says Dan MacDonald, vice president of product management and marketing at Nokia. "CIOs and IT managers are faced with meeting mobile connectivity demands, but they must do so while keeping budgets flat, and keeping corporate assets secure."

MacDonald says that several network integrity issues have emerged from the confluence of mobile devices, flexible work hours and the surging Internet: How can CIOs manage user identity, control the security of the myriad access devices in use, and effectively manage content access without stifling vital business processes?

Many enterprises struggle with aggressive application roll outs that support a wide range of user devices and network types, while satisfying business requirements for

timing, performance and cost. Nokia combines its expertise as the leader in mobile communications and IP security solutions to enable business solutions via fixed and mobile connections that ensure network integrity, allowing employees and users to confidently communicate even while out of the office.

Nokia mobile connectivity solutions provide a unique comprehensive portfolio of system level solutions that enable rapid return on investment and sustainable competitive advantage for the enterprise, based on both IPSec and SSL technologies.

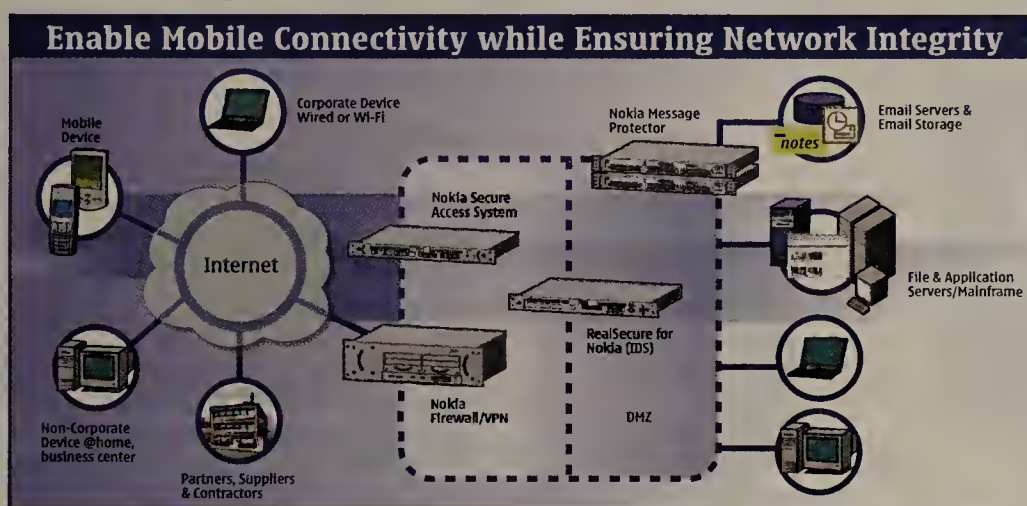
Transactions from employees' mobile terminals to their corporate networks must be secure in order to enable the mobile office. For the past 6 years, Nokia has been developing technology for managing and providing security so that both fixed and mobile offices may be accessed routinely without worry. Nokia network integrity solutions include industry leading Virtual Private Network (VPN), Firewall, Content Security and Intrusion Protection systems, addressing the needs of the largest corporate data center or Service Provider network to the smallest home office.

As the number one business application, email has also become the number one business security challenge. As traffic over wireless networks continues to grow, so will spam and other email issues such as protection of intellectual property.

Traditional solutions have focused on anti-virus protection, while Nokia Message Protector adds new levels of protection to increase the integrity in email messaging for both fixed and mobile connections through spam protection, exploit rejection and content filtering.

Nokia mobile connectivity solutions address the security and mobility limitations of legacy products by offering superior access, security, and management of the email security infrastructure for a mobile work force.

Today, corporations need to conduct business real time - all the time - and secure, remote mobile connectivity solutions from Nokia enable enterprises to do just that.



Email going mobile? Two recently introduced Nokia solutions extend enterprises' options to access email securely, anywhere, from any device.

Network Integrity Solutions

Nokia Message Protector is an enterprise-class secure content management appliance for SMTP (simple mail transport protocol) traffic entering and leaving corporate mail networks. Its unique features include:

- **SPAM Prevention**
- **Content Inspection**
- **Virus Protection**
- **Heuristic Exploit Rejection Object (HERO)**
- **Secure Automatic Updates**



Mobile Connectivity Solutions

Nokia Secure Access System is a remote access solution leveraging ubiquitous Secure Socket Layer (SSL) technology running on Nokia's widely accepted IP Security Platforms with several distinguishing features including:

- **Client Integrity Scan.** A unique feature, CIS scans the remote device for open TCP ports, bad files, good files and active processes to improve security of enterprise data.
- **Advanced Access Control.** Nokia Secure Access System can increase or decrease the level of access for remote users depending on the result of the Client Integrity Scan or presence of a digital certificate.
- **Session Persistence.** This function allows users to resume work without losing data if their SSL session has timed out due to lack of activity. There is no concern if a user is interrupted while connected through Nokia Secure Access System.



According to Charles Kolodgy of IDC, "Nokia is cementing its position as a leader in secure connectivity by offering consistent, secure, and flexible remote access to corporate applications from any device."

To download white papers or for more information about Nokia Mobile Connectivity Solutions visit www.nokia.com/mobileaccess/americas

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CA launches network performance mgmt. software

■ BY DENISE DUBIE

Computer Associates last week rolled out software designed to watch traffic and

map the physical relationships between applications and the underlying infrastructure that supports them, which the company says will speed problem resolu-

tion and improve performance.

Unicenter Network Forensics and Unicenter Network Forensics Mobile Edition are part of the Unicenter Network and Systems Management portfolio. They perform traffic monitoring and packet analysis to diagnose and resolve network problems.

Unicenter Network Forensics consists of a server component that can be installed on a dedicated server and software agents CA calls collectors. The collectors are in-

supporting applications. The idea is to help users spot problems causing poor performance for business-critical applications, says David Hochhauser, CA vice president of Unicenter Solutions.

Rich Ptak, principal at research firm Ptak & Associates, says CA's Sonar and Network Forensics software offer customers an automated way to build relationships between applications and the infrastructure components that support them. Network managers typically use a

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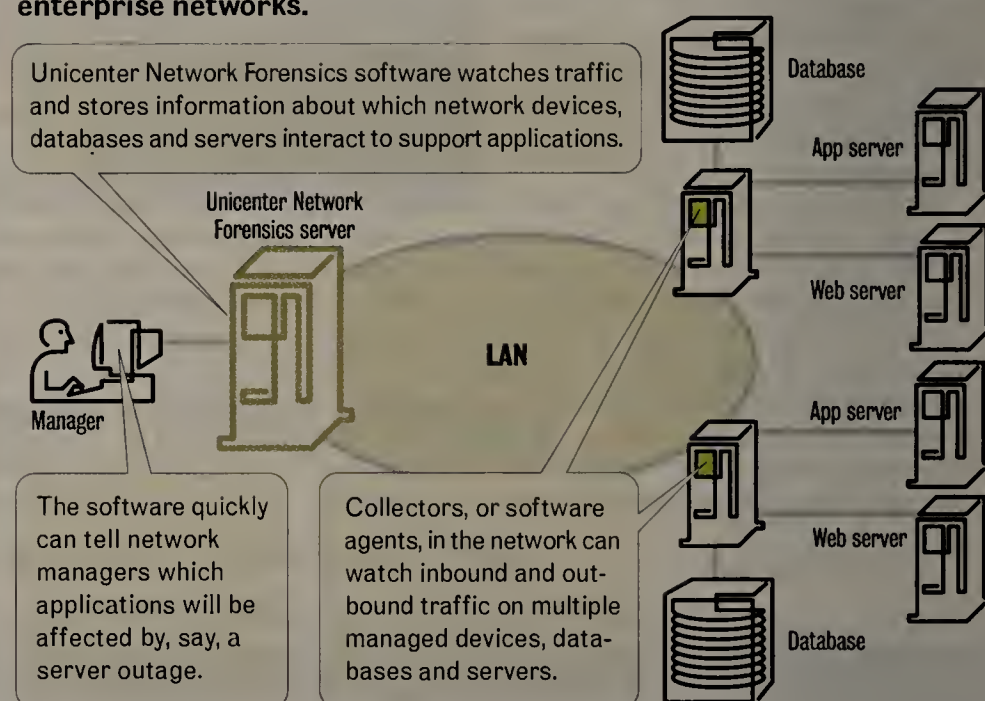
More and more IT professionals are changing from legacy systems to a new integrated power and cooling solution.

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See the next page for more.

Forensic analysis

Computer Associates' Unicenter Network Forensics watches traffic and analyzes packets to identify and prevent performance problems on enterprise networks.



stalled on servers or devices in specific network locations to watch traffic. They differ from agents deployed in typical network management products in that network managers need not deploy a collector to every managed device. One collector can monitor multiple managed devices depending on the amount of traffic it generates.

By watching network traffic patterns, the Forensics software alerts companies about potential problems such as an overloaded router, slow server or poor desktop application performance. The server software also stores and correlates data to spot trends.

The Mobile Edition can be installed on a laptop and lets network managers perform diagnostics on access points and specific departmental servers, and identify rogue mobile or wireless users.

The Forensics software uses CA's recently announced Sonar technology, which watches traffic, and builds physical and logical relationships among network devices, servers, storage and applications. Sonar is intended to work in real time to relate business service performance and automate responses to problems to the infrastructure

combination of the original network topology and information stored in disparate locations about adds, moves and changes to understand the physical and logical topology of their networks. Ptak says tools such as Network Forensics and BMC Software's new Service Impact Management (SIM) are attempting to provide an accurate map of applications and network devices, and their relationships.

BMC's SIM, released last week, builds a map of the network and connects the dots between network components and the applications they support. Unlike CA's Forensics, BMC's SIM uses modeling technology the company acquired from its IT Masters purchase to build the same application and infrastructure relationships.

Pricing for Unicenter Network Forensics and Network Forensics Mobile Edition starts at \$45,000. ■



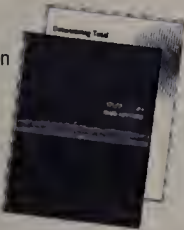
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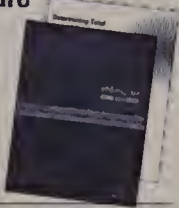
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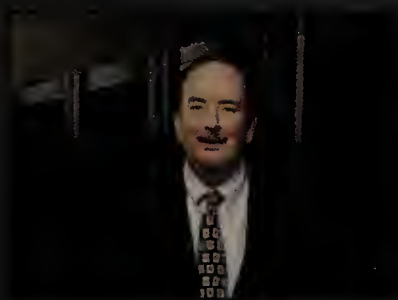
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InfraStruXure™ is the Key to Stronger NCPI

by Russell Senesac
InfraStruXure Product Manager

APC InfraStruXure™ architecture is the industry's new benchmark for on-demand network-critical physical infrastructure (NCPI). The foundation of IT networks, NCPI consists of power, power distribution, racks, cabling, cable distribution, cooling, and cooling distribution. Strong NCPI defends your IT networks against security and availability problems.

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NETWORKS™

Symantec pumps up handheld anti-virus products

■ BY ELLEN MESSMER

Symantec last week announced its first anti-virus software for Palm Pilot operating system and Microsoft PocketPC-based handhelds, making it possible for businesses to centrally manage the devices' anti-virus configurations and updates.

Expected next week, Symantec AntiVirus for Handhelds Corporate Edition is designed to protect Palm OS and PocketPC-based handheld devices against viruses, worms and Trojans.

Once the software is installed on the user's desktop PC, the anti-virus software is sent to the handheld during synchronization with the PC, or over a wireless LAN or infrared connection. The handhelds can be kept up to date with the latest signatures for new viruses or worms via automated updates through the desktop synchronization process. Another means for updating directly to the handheld will be over the Internet wirelessly through what Symantec calls its LiveUpdate Wireless service.

"Symantec AntiVirus for Handhelds Corporate Edition works under the Symantec enterprise security architecture in terms of logging events," says Laura Garcia-Manrique, Symantec's group product manager. This means the event and configuration manager for the handhelds is the same as that used for other Symantec anti-virus products so that centralized alerting, logging and reporting is possible.

"And the manager can configure each handheld, for example, by preventing the user from turning off the AutoProtect real-time scanning," Garcia-Manrique says. The anti-virus software for handhelds costs as much as \$27 or as little as \$10, depending on volume.

Symantec is competing against Computer Associates, Network Associates and Trend Micro, among others, with business-oriented anti-virus software for handheld devices.

For remote users, Symantec this week also will unwrap Norton AntiVirus 2004, the next version of its desktop anti-virus software. The 2004 edition adds the means to not only detect and stop worms and viruses, but also other dangers and annoyances that include spyware, adware, dialers and "joke programs" that might be downloaded from the Internet or sent as an attachment.

"We're not going to capture them all," says Kelly Martin, senior product manager at Symantec. But Symantec is analyzing the most prevalent and mettlesome spyware and adware, among other junk, to

include signatures that users can activate if they want to exclude it.

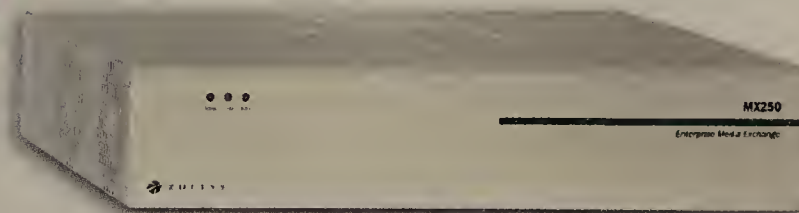
Norton AntiVirus 2004, which will cost \$49.95 for a new annual subscription or

\$29.95 as a renewal, also will be able to decompress and scan peer-to-peer file-sharing programs for viruses they might hold. These new features are not yet in the

Symantec Corporate Edition, but in the past Symantec has added new capabilities later when they work well in the home-user edition. ■

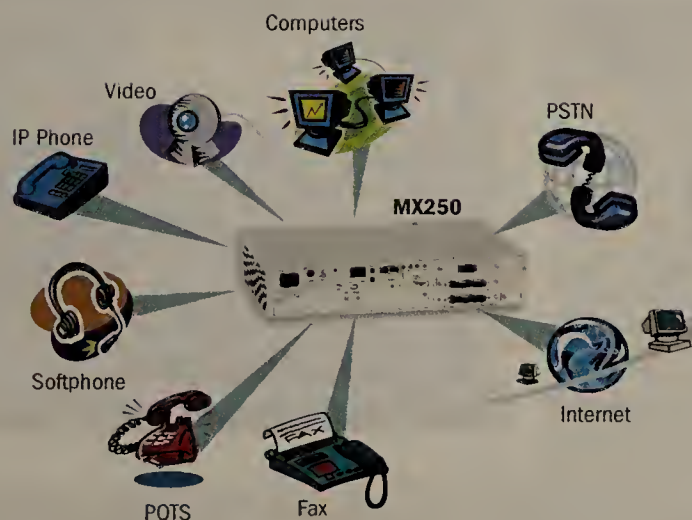
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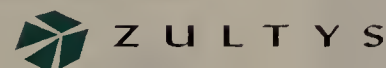


Following the successful launch of the MX1200, the world's first Enterprise Media Exchange, Zultys now announces the introduction of the MX250. Whilst retaining all the features that have already gained wide acceptance, the MX250 adds specific functionality for smaller enterprises or branch offices.

With configurations starting at 5 users, the MX250 can expand to 250 users without requiring any additional hardware. Affordable and easy to deploy, the MX250 integrates multimedia communications into a compact system.

The MX250 is 100% based on open standards, powered by Linux, SIP, VoiceXML, and TAPI. This guarantees flexibility and inter-operability within your network. You can make calls, access voice mail, access fax mail, determine presence, and send instant messages, all from a single graphical interface.

To learn how the MX250 can address your communications needs and enhance the productivity of your business, call us or access our web site.



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Short Takes

■ **IBM** last week announced an **802.11a/b/g Wireless LAN Mini PCI Adapter** for its wireless-upgradable ThinkPad notebooks. The Mini PCI adapter data supports rates up to 54M bit/sec in the 2.4-GHz and 5-GHz bands. The adapter automatically will search for the best connection as users roam through different WLAN networks, helping to maintain connectivity throughout a wireless environment, IBM says. For security, the adapter supports Wired Equivalent Privacy, and future releases will support the new Wi-Fi Protected Access, Advanced Encryption Standard and 802.1x authentication. In addition, IBM offers the Embedded Security Subsystem on selected ThinkPad systems. The ESS can be used to augment 802.1x authentication and security, storing authentication credentials. The adapter is expected to be ready Sept. 8 and will sell for \$99.

■ **Adaptec** last week announced a network accelerator adapter that off-loads TCP/IP processing from the host computer, making it more available for running applications. The **Adaptec NAC 7711** is a Gigabit Ethernet adapter that is available in fiber or copper implementations. The adapter with fiber-optic connections sells for \$995; the copper-based version costs \$895.

■ **Gateway** is announcing storage systems for its business servers. The company this week will announce the **850 SCSI JBOD** system and the **820 Linear Tape Open Autoloader**. Both systems are rack-mountable and 2U high. The 850, which has hot-swappable power supplies and redundant cooling fans, has as many as 12 hot-swappable Ultra 320 SCSI drives for a total capacity of 1.7 terabytes of data. The autoloader features an LTO-1 Ultrium tape drive with capacity for 100G bytes of uncompressed data and an eight-cartridge carousel, which holds LTO tape with a maximum capacity of 800G bytes of data. The 850 costs \$3,000 for a system with three 36G-byte disks; the LTO tape autoloader costs \$5,800.

In Site: Lessons from leading users

Mobile dial-up app pays off for sales firm

■ BY JOHN COX

After Chuck Latham spent \$300,000 trying, and failing, to launch a mobile sales application for his sales firm, he didn't give up.

Instead he let someone else do it.

Today, Charles Latham Associates in Parker, Colo., relies on a hosted service from application service provider (ASP) Unique Solutions, with a specialized sales automation application developed for handheld computers and data synchronization software to manage nearly 200 sales staff members in the field. Most of these professionals work from home as the sales force for wholesalers that supply pet food and other products to retailers such as Petco.

The Toshiba PocketPC computers let sales staffers upload once or twice daily digital photos, survey results, order data, signatures and more to a central database. The next day, managers can see how a new display has been set up or why a group of customers had complaints about another display.

In addition, regional managers now review each Friday morning with CEO Chuck Latham and other headquarters executives an extensive set of weekly reports on orders, the number of stores visited by each sales representative, pending problems or backlogs. The data gives senior managers new, more accurate measures of the effectiveness of the sales team and guides decisions on how to improve that effectiveness.

The sales representatives see only

their Toshiba and a Windows application called FieldTrack. They dial a toll-free number once or twice daily to synchronize the data they collect at each stop with a FieldTrack database, via Extended Systems' ExtendConnect middleware.

Unique Solutions wrote FieldTrack as a way to eliminate paper from field service operations. Unique offers the application as a hosted service specifically designed for small and midsize merchandizing service companies.

The idea was a sanity saver, Latham says.

"We had stupidly tried to write our own program for Palm handhelds and a Lotus Notes database, about three years ago," Latham recalls. The

See Latham, page 28

Cisco adds Gigabit stackable switches

■ BY PHIL HOCHMUTH

With an eye toward helping corporate customers add faster and more intelligent pipes to their LANs, Cisco last week added a new version of its stackable aggregation switch and a new Gigabit Ethernet box for desktop links.

The Catalyst 3750G-12S includes 12 fiber-based Gigabit ports and can be linked with up to eight other 3750 series switches with Cisco's StackWise technology, creating a high-speed ring of switches. The 24-port Catalyst 2970G-24T is targeted as a LAN edge switch, with 10/100/1000M bit/sec capabilities and quality of service on all ports.

StackWise technology, announced in April along with the Catalyst 3750 series, lets stackable Gigabit Ethernet switches be linked in a 32G bit/sec ring, which provides fast failover and high-speed uplinks to wiring closet switches, Cisco says. The Catalyst 3750G-12S could be used as an aggregation layer switch, connecting wiring closet boxes to a LAN core. The switch also comes with Cisco's Cluster Management Suite software, which can be



Cisco's Catalyst 3750G-12S offers fiber Gigabit ports.

used to configure, manage and monitor StackWise clusters.

Catalyst 3750 switches with StackWise are being deployed at Portland State University in Oregon, where 20 of the stackable boxes will serve as the school's aggregation and backbone layers. The ability to add more switches as needed was the reason the school chose the stackable Cisco technology instead of a chassis-based core product, says Jon Snyder, a network engineer at the university. He adds that support costs on the individual 3750s will be much less than if he were to deploy Catalyst 6500 chassis to do the same job.

"Of course, you can do more with a [Catalyst 6500], but for our purposes, the [Catalyst] 3750s were the best choice," he says.

The Catalyst 2970G-24T is aimed at wiring closets in companies looking into

Gigabit to the desktop. With the ability to provide three speeds of Ethernet, the switch could be deployed to support 10/100M bit/sec users now, and eventually Gigabit Ethernet desktop users. The box also comes with four slots for adding Gigabit uplink insert modules, which can be fiber- or copper-based.

Cisco's Catalyst 3750 line competes with 3Com's Switch 4000 series of fixed-configuration Gigabit Ethernet switches and Nortel's BayStack 5000 all-Gigabit boxes. 3Com has its Extendable Resilient Network architecture, which connects Switch 4000s with multigigabit links and provides failover of Layer 3 routing tables. Nortel's Flexible Advanced Stacking Technology is similar technology that can connect BayStack 5000s with up to 20G bit/sec of total bandwidth.

The Catalyst 3750G-12S costs \$8,000. The Catalyst 2970G-24TS will be available at the end of this month for \$5,500. ■



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WIRED
WINDOWSDave
Kearns

For years people have moaned and groaned about the goings-on at the U.S. Patent and Trademark Office, especially in the high-tech field. The practice of awarding patent protection to software has been reviled almost universally (except by the patent holders, of course). Think of the bad press Amazon.com got for its patent on "one click" ordering (see, for example, "Boycott Amazon!" at www.nwfusion.com, DocFinder: 7335).

While reform of the USPTO is desirable, staffing it to properly handle a myriad of technologies and a deluge of applications would cost more than a tax-avoiding U.S. population would bear. Thoughtful people,

Beware the patent office

though, always have felt that the judiciary would throw out the most egregious patents should anyone ever try to enforce them. After all, the first defense anyone would make against patent infringement would be that the patent was invalid, wouldn't it?

Well, they try to. But evidently there are judges who have a myopic view of the USPTO and seem to believe that they wouldn't award a patent if it weren't valid. One of these is District Court Judge James Zagel in Chicago. In a recently decided case brought by Eolas Technologies (a company with one employee, no products but a handful of patents and more than 100 investors) against Microsoft, the judge twice refused to let the Redmond company present evidence that the particular patent was invalid.

Eolas says that Microsoft's ActiveX technology infringed the patent (which describes, in part, "a system allowing a user of

a browser program . . . to access and execute an embedded program object") that was granted in 1998 for work originally done at the University of California. If the patent is valid, then the claim is true.

Microsoft could show that its work on what became ActiveX began in the 1980s and was ready to call an independent third-party witness who developed similar, but earlier, technology, also at the University of California. Zagel refused to let the jury hear this evidence showing the patent was invalid.

It's hoped that the appeals court will be more skeptical of the USPTO, but then we always thought that a district judge should be able to recognize an invalid patent. We were very wrong, and we should be very afraid. Hundreds of patents are granted every day. Many, perhaps most, have no real commercial application. But some could alter drastically the technology landscape and deeply affect your pocketbook.

Kearns, a former network administrator, is a freelance writer and consultant in Silicon Valley. He can be reached at wired@vquill.com.

Tip of the Week

The patent under dispute, No. 5,838,906, can be viewed at the **USPTO Web site** (www.uspto.gov). Remember that you understand technology in ways the patent examiner — and especially the judge — do not. Read the patent, then write your congressman and demand patent reform.

Site: Lessons from Leading Users

Latham

continued from page 25

synchronization software from Extended Systems worked fine, but the PalmOS at the time lacked the features of a 32-bit platform such as Microsoft PocketPC. Worst of all, Notes proved unsuitable as the data store because it wasn't a true SQL relational database.

Latham was getting desperate, investigating interactive voice-response phones and optical character readers as ways to turn data around quickly. But those options limited sales representatives to yes or no responses.

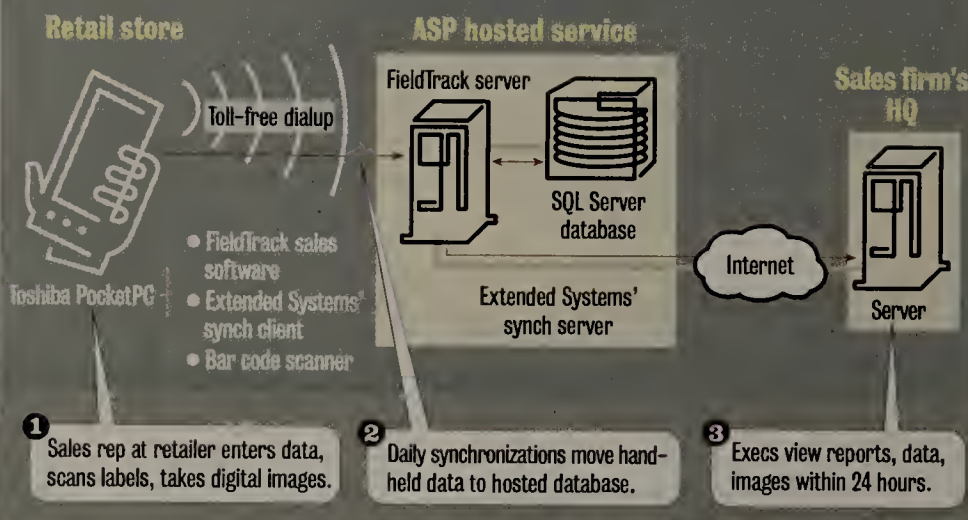
In the meantime, the representatives were faxing orders and written reports to headquarters and experimenting with Handspring's Treo device, a combination cell phone and PDA.

Latham eventually found Unique. FieldTrack gave the sales team most of what it needed and a centralized Microsoft SQL Server database that made for extensive data analysis. Even more important for the hard-pressed Latham, Unique worked closely with their clients.

But it seemed like déjà vu all over again when the first rollout, on Casio PocketPCs, ground to a halt when a memory fault plagued the handhelds. Seventy of nearly 100 of the devices had to be sent back, and Casio took 60 to 90 days to sort things out, Latham recalls. But by then, he had had enough and switched to the Toshiba handhelds, with a bar code scanner and a separate HP digital camera. A memory card lets the representative transfer the images to the

Hosted mobility pays off

The sales team at Charles Latham Associates relies on a service that offers sales automation applications developed data and synchronization software for wireless handheld computers. The service lets the company get fast, more accurate measures of the effectiveness of the sales team and guide decisions on how to improve the business.



handheld for uploading.

Sales representatives usually synchronize their handhelds once a day. Unique has eight toll-free T-1 lines to the hosted site. With Extended's software, each synchronization takes about 12 to 14 minutes, says Andy Fay, Unique's executive vice president. Each sales representative typically uploads 10 to 15 images daily.

So far, Latham says, he's spent about \$100,000 on all the various hardware and software elements, and another \$100,000 for the ASP service.

"We're starting to see a return on our investment," he says. Part of the return is

in getting much more accurate data, much faster than ever before. "For managers, they can now know when they have a problem usually within 24 hours, instead of having to wait a week," he says.

Another benefit is the weekly trend analysis. "We can evaluate how well we executed that week," Latham says.

The next step is adding, with Unique, a complete travel-and-expense report program, followed later by a time-and-attendance program. "A 2% reduction in mileage [reimbursements], by more precise records, can pay for this [system] in a year," Latham says. ■

Avaya cabling makes 10G go further

■ BY PHIL HOCHMUTH

Avaya last week released new cabling products aimed at helping users increase the distances between 10G Ethernet devices.

The company says its LazrSpeed 550 structured cabling infrastructure products, which include multi-mode fiber cabling, couplers and racks, could let companies almost double the range of 10G Ethernet signals over multi-mode fiber cabling.

LazrSpeed 550 cabling can amplify 10G Ethernet signals, letting them reach up to about 1,800 feet, up from the standard limitation of 980 feet, the company says.

Most of the IEEE's 802.3ae standard for 10G Ethernet calls for running 10G over costly single-mode fiber, with distances of up to 40 miles. These specifications were made mostly with carriers in mind. But the standard does include an 850nm specification for running 10G over multi-mode fiber — the fiber cabling commonly installed in many organizations to support FDDI rings. Multi-mode fiber can be installed for around half the cost of single-mode, according to cabling industry experts.

There hasn't been much uptake for Avaya's 10G Ethernet switch products — it had a little more than 2% of the 10G market in 2002, according to Synergy Research. But Avaya is the leader in structured cabling systems in the U.S., according to InfoTech. Avaya's connectivity business, which includes structured cabling systems, is a legacy business left over from before the firm split off of Lucent. While emphasized as a growth area by Avaya, it accounts for around 12% of its \$3.2 billion in revenue. ■



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Special Focus

INFRASTRUCTURE: Empowering virtual servers.

Virtualized data center servers get help

■ BY JENNIFER MEARS

Corporate customers are looking to save money and boost production by consolidating workloads onto single servers.

By using virtualization technologies, which separate software from hardware platforms, users can eliminate multiple physical servers and get the processing power they need from fewer boxes. But those virtualized servers need to communicate with each other, and as such new technologies likely will rise to speed performance and ensure security. HP, IBM and Sun all have looked at or developed these server-interconnection technologies. Other technologies such as InfiniBand, the high-speed I/O switching fabric and 10G Ethernet, also are emerging.

IBM seems to be the furthest along, analysts say. The company developed HiperSockets, a technology used in its z900 mainframe, to address performance issues. And analysts expect technologies like it will become more widely deployed as data centers morph into on-demand environments where communication and resource sharing is essential.

HiperSockets creates a virtual LAN (VLAN) inside a zSeries mainframe. It is microcode, or firmware, that uses TCP/IP protocol to move traffic among operating system images, allowing for memory-to-memory communication. Because it uses the memory bus for its communication channel, HiperSockets allows for performance that is faster with less latency than typical external network connections such as Ethernet, IBM says.

"Latency turns out to be extremely low, a plus especially with transactional applications that would have to wait for network turnaround with traditional network links," says Jim Goethals, IBM's zSeries networking manager. "In this scenario there is hardly any turnaround delay."

Without HiperSockets, traffic within a mainframe would travel over external network paths or be routed via an Open Systems Adapter (OSA)-Express card among partitions. HiperSockets takes that internal OSA-Express delivery a step further, eliminating the OSA-Express middleman and enabling memory-to-memory communication among applications.

HiperSockets replaces physical mainframe I/O channel devices such as OSA-Express — IBM's mainframe LAN adapter, Enterprise Systems Connection and Fibre Channel.

In the latest release of IBM's zSeries, the zSeries 990, users can define up to 16 HiperSockets LANs, which supports up to 4,096 virtual servers or up to 12,288 IP addresses.

Called a "network in a box" by IBM, HiperSockets originally was introduced to reduce the external gear needed to support consolidated workloads on a mainframe and provide a highly available, high-speed network connection among combinations of virtual servers and logical partitions. Analysts say the technology will come in handy as users consolidate workloads and look for ways to improve communication among virtualized servers.

"The advantage comes because I can run multiple operating systems on there. But what I'm really trying to do is to be able to share resources or have some

better communication among things because they're on the same box as opposed to being on separate boxes," says John Phelps, a research vice president at Gartner.

In addition, IBM executives note that because the server-to-server communication can happen within the mainframe, bandwidth on external LAN backbones is freed up to increase capacity for traffic into and out of the mainframe. Security is also better, they say, because traffic never leaves the mainframe chassis. Application performance also is improved because data transfers can happen more quickly and with less latency.

Most companies use HiperSockets to link middle-tier applications running on Linux, z/OS or z/VM virtual servers. More and more, HiperSockets is playing a role in linking to databases and transaction applications.

"The more independent domains or partitions or little zones of work you have, the more interconnected they are, the bigger the payoff," says Jonathan Eunice, president and principal analyst at Illuminata.

side, the traffic would have to flow out through the network to get there," Poole says.

"With the OSA card being shared by both z/OS and z/VM, that traffic takes a shortcut and is routed right on the card," he says. "HiperSockets [lightens the load] on the OSA card, and traffic flows directly from z/VM to z/OS at speeds not attainable any other way."

Looking ahead, Poole says he plans to use HiperSockets to create high-speed connections from Linux instances to the DB2 data warehouse running on the mainframe's z/OS side. "Distributed database access has never been faster," he says.

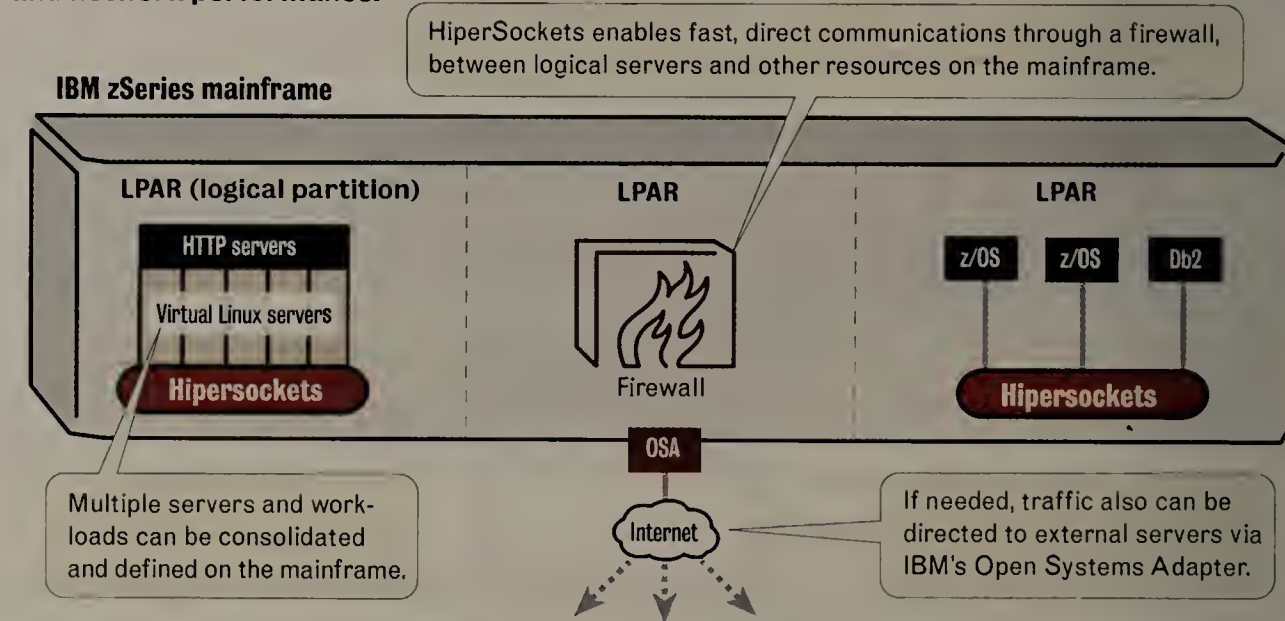
HiperSockets is available only with zSeries mainframes, but IBM executives say users can expect to see HiperSockets integrated, in some form, into other IBM platforms.

Analysts say they wouldn't be surprised to see HP, Sun and others start to look at similar technologies.

Sun introduced a VLAN type of technology called InterDomain Networks (IDN) in the late 1990s on its

Hyped up

IBM's HiperSockets is software that creates a virtual LAN inside zSeries mainframes. The idea is to move traffic directly between operating system or database images, improving application and network performance.



For Boscov's Department Stores, running Linux on an IBM mainframe meant getting rid of the headaches associated with running dozens of Windows NT servers. In 2001, Boscov consolidated workloads from more than 40 NT servers to Linux virtual servers on the IBM z900.

The company, which operates 39 department stores in Pennsylvania, Delaware, Maryland, New York and New Jersey, uses HiperSockets to improve performance of applications on the mainframe. HiperSockets connects Linux instances on the z/VM side of the z900 with Customer Information Control System applications, Tivoli Storage Manager for backing up data and the Lightweight Directory Access Protocol server on the z/OS side, says Joe Poole, technical director at Boscov's in Reading, Pa.

"If one side of the z900 needed contact with the other

StarFire Enterprise 10000 servers. IDN enabled high-speed networking between domains, or partitions, in the server using standard interfaces such as TCP/IP. Like HiperSockets, it enabled memory-to-memory communication.

But Sun no longer offers IDN and is moving away from partitioning operating systems into multiple images, says Don Whitehead, director of Sun's mainframe rehosting group. Instead, the Solaris operating system will use "containers," which are basically isolated applications that share one operating-system image.

HP says its focus is on Remote Direct Memory Access (RDMA), which enables memory-to-memory communication over TCP/IP. RDMA is an external network link that works over Ethernet. Unisys says it also is looking at external network connectivity for its partitioned servers. ■

Freedom of Choice Comes to Wireless

3Com's modular lineup of wireless access points and all-purpose PC Cards support any mix of WLAN and security standards.

Even though wireless LANs have been available for years now, many enterprises have shied away from major implementations for a number of reasons, including concerns about standards, security, scalability and management. Nobody wants to get stuck with technology that becomes obsolete as new generations emerge or that opens the door to intruders.

3Com® has devised a wireless LAN strategy that addresses each of these concerns, with a lineup of wireless products that support all existing WLAN standards. The 3Com 8200, 8500 and 8700 Wireless LAN Access Points use a modular architecture that allows customers to upgrade from one wireless standard to another as requirements dictate.

MODULAR SOLUTIONS

With 3Com's modular approach, users can support any mix of wireless standards (see table). 3Com offers three base models of access points: the 3Com Wireless LAN Access Point 8200 includes an 802.11b radio, while the model 8500 includes an

802.11a radio and the 8700 includes both types of radios. 3Com also offers upgrade kits that allow users to add any type of radio – 802.11a, 11b or 11g – to any of the modular access points. That means users can employ any type of access point and be assured they could later buy an upgrade kit to address future requirements.

A single 3Com Wireless PC Card supports all three IEEE 802.11 wireless networking standards, enabling a client machine to connect to any type of WiFi network. The WiFi-certified card comes with 3Com's award-winning, patented XJACK® antenna, which retracts inside the card, so it won't break off when users store their computers in travel cases. The XJACK antenna also helps preserve battery life because it draws power only when extended.

SECURE, RELIABLE AND FAST

3Com likewise supports a suite of security standards, enabling customers to match the level of security to their specific requirements. To protect against unauthorized network access, the PC Card and access points support WiFi Protected Access (WPA), the next-generation WiFi security standard, 802.1x authentication

with RADIUS server authentication support using MD5 and the Extensible Authentication Protocol (EAP), including EAP-TLS, PEAP and EAP-TTLS.

To protect data in transit, 3Com supports a number of encryption algorithms, including 128-bit Advanced Encryption Standard, and Wireless Equivalent Privacy (WEP) RC4 40/64-bit, 128-bit and 154-bit shared-key encryption.

To ensure good performance, 3Com access points and PC Cards include

Naturally, 3Com access points and PC Cards support the top speeds allowed by each wireless standard – up to 54 Mbps for 802.11a and 802.11g, or 108 Mbps in turbo mode, which combines the throughput of two channels.

MAKING WIRELESS MANAGEABLE

Using the Wireless LAN Manager, administrators can create profiles with the specific wireless LAN settings that each user requires, depending

3Com on Campus

"Our 3Com wireless solution enables us to extend research and scholarship beyond the classroom into virtually every corner of our campus. Using their access points, we're delivering anytime, anywhere connectivity simply and securely — for thousands of dollars less than an equivalent wired solution."

Vedat Gunay, associate director of information technology services, State University of West Georgia.

features such as autonomous load balancing, ensuring users always connect to the access point that offers fastest throughput, and dynamic rate shifting, which adjusts connection speed to changing traffic and environmental conditions.

Like many other 3Com products, the access points support Power over Ethernet, enabling the same Category 5 cable that connects the access point to the network to supply its power. That simplifies installation and offers more choices in mounting options.

on where they need to connect from. As users change location, they merely click on an icon for the new location to configure the card.

3Com also supports management standards including SNMP, enabling a 3Com wireless network to be managed alongside a wired network from platforms including the 3Com Network Supervisor and HP OpenView. Using an embedded Web server browser, customers can configure parameters, run diagnostics and monitor performance of the wireless LAN from anywhere on the network.

The 3Com wireless LAN story is all about freedom of choice. Whether it's choosing the wireless LAN standard that best fits your environment now – knowing you can upgrade if requirements change – or the mix of authentication protocols and encryption standards, even the management platform, 3Com offers options to match most any enterprise requirement. In short, 3Com has eliminated the roadblocks to widespread enterprise wireless LAN deployments.

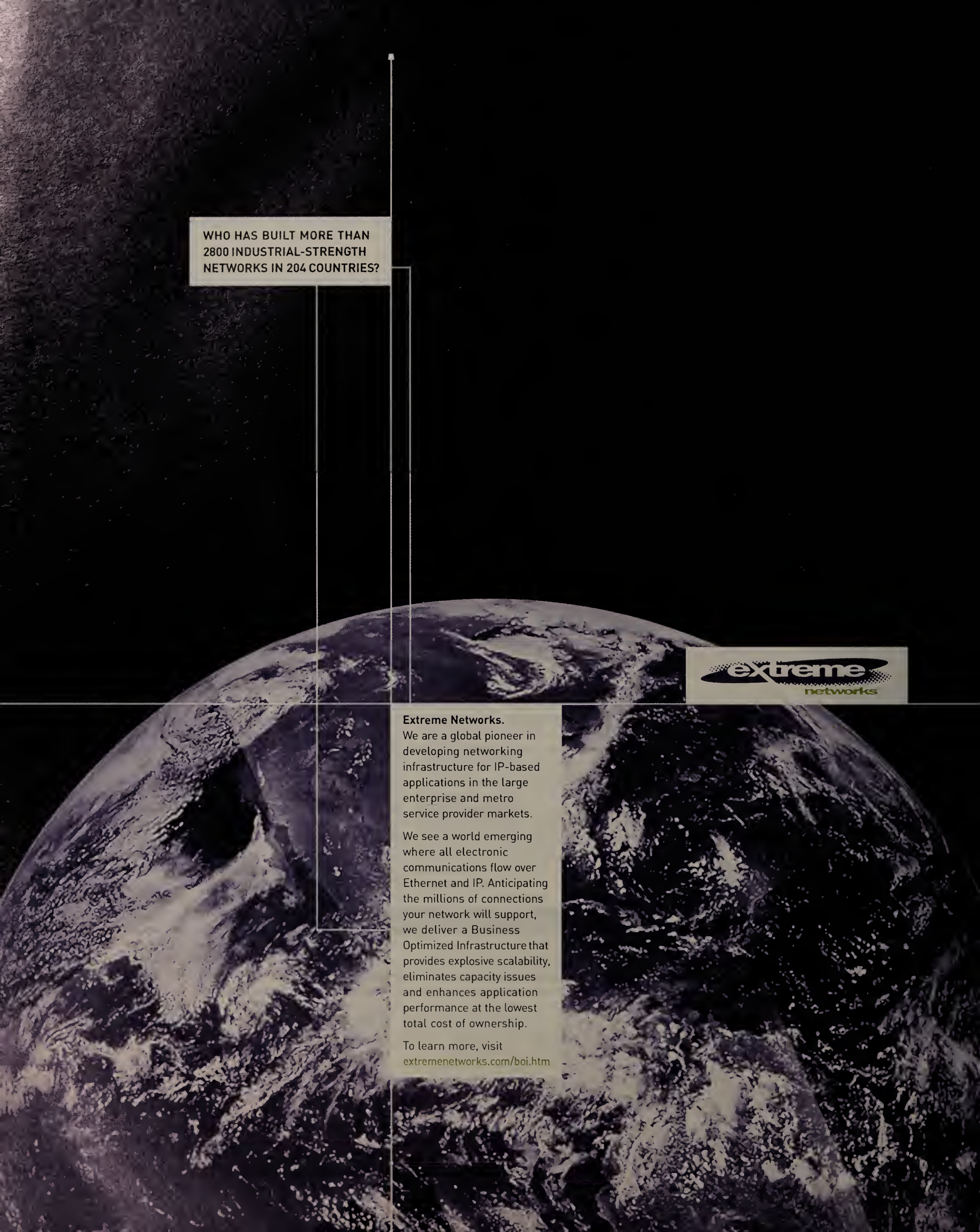
3Com wireless LAN access points and 11a/b/g Wireless PC Card with patented XJACK antenna give customers the ultimate in flexibility along with performance, security and management.

WLAN Standards at a Glance

Standard	Speed	Range (meters)	Frequency	Compatible Standard	Comments
802.11a	54 Mbps, or 108 Mbps in turbo mode	50	5 GHz	None	Operates on a low-interference channel, but with limited coverage. Good for customers with dense user base.
802.11b	11 Mbps	100	2.4 GHz	802.11g	The most widely deployed wireless standard, 802.11b has a high degree of multivendor interoperability but operates in the crowded 2.4GHz spectrum and has a relatively slow top speed.
802.11g	54 Mbps, or 108 Mbps in turbo mode	100	2.4 GHz	802.11b	Higher speed, but still compatible with the millions of installed 802.11b products. Faces same spectrum issues as 802.11b.

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Flamenco revs Web services management platform

■ BY JOHN FONTANA

Flamenco Networks next month is scheduled to unveil the next version of its Web Services Management platform, which provides corporate customers with the means to control and secure XML-based network traffic.

WSM 4.0 is a distributed platform that consists of two primary components, a controller and a set of proxies. The controller monitors and manages Web services traffic using data collected from proxies, which run on Windows, Linux or Sun Solaris. The proxies are configured to support a variety of security functions such as authentication, authorization, policy, encryption, digital signatures and non-repudiation for Web services applications.

In WSM 4.0, Flamenco says it has rewritten its proxies in C and C++ to increase performance. Previously the proxies were written in Java, which will continue to be supported but is being phased out. The

See Flamenco, page 34

Revolutionary retailing a reality

German supermarket uses wireless, RFID to run business.

■ BY JOHN BLAU

Imagine a transponder tagged to a bottle of shampoo tracking its whereabouts in a supermarket, or a "smart" shelf informing staff to replenish the selection of cream cheese, or a mini-PC attached to the shopping cart, letting shoppers scan their own purchases, call up bargains and navigate the store.

No, these gizmos aren't science fiction; they're cutting-edge IT retailing systems that are being tested in a supermarket in Rheinberg, Germany. The store is serving as a retail laboratory for its owner, Metro, with about 40 hardware and software partners from around the globe. And it's raising some eyebrows in the industry.

The collection of applications in Metro's Future Store initiative aims to boost store efficiency through such improvements as enabling targeted marketing and ending long queues.

Not everything in the Future Store will find its way into the market. After all, this is an experimental store, but it's one that involves real customers using real technology in real time. And it's run by the fifth-largest retailer in the world, with 2,300 stores in 26 countries and sales of \$54 billion in 2002.

Even hardened, retail technology executives acknowledge that the prospect of testing and refining multiple technologies in a retail setting is enough to make their hearts pound. "This is a unique IT retailing experiment, and we're glad to be a part of it," says Dimitris Nikolatas, product manager of Cisco. Cisco is providing a lot of the hardware and wireless IP infrastructure, including a content delivery platform that broadcasts audio and video content and data to any number of delivery points.

Leading-edge technology

Of all the technologies being tested, two stand out: wireless and radio frequency ID (RFID). The two are linked to just about every new technical gadget being tested in the store.

The 4,000-square-foot building is covered by a wireless LAN (WLAN), based on the 802.11b standard. The network links all mobile devices, such as personal shopping assistants (PSA) and PDAs, and some stationary devices, such as electronic shelf labels (ESL), checkout points and flat-screen displays for product promotion.

The PSA is, essentially, a mini-computer attached to the shopping cart and linked directly to the WLAN. Manufactured by Wincor Nixdorf International, the PC includes a touchscreen with an integrated scanner that lets shoppers scan their purchases for quick payment at the checkout point. Purchase data is transmitted over the WLAN to the checkout terminal. Shoppers give the clerk their reference number assigned by the PSA and pay without emptying the shopping carts.

Store employees are equipped with PDAs. The Future Store is testing HP's iPaq 5450 and 3970 models and Symbol Technologies' PDT8100. The handheld devices run Windows Pocket PC operating system.

Linked to the WLAN, the PDAs let employees check inventory or reorder goods by accessing Metro's merchandise management system and from anywhere in the store. The next phase of development calls for the PDAs to receive "soft phone" features, letting staff make calls in addition to sending messages or downloading information, according to Nikolatas. The service will be based on voice-over-IP technology, as are all other hardwired and wireless in-store communication systems.

While ESL technology isn't entirely new (the technology has been around for almost a decade), its prohibitive cost had

Tracking goods

Pallets and boxes are tagged at Metro's distribution center in Essen, Germany, and recorded as they pass through a gate in the Future Store. The system is designed to provide real-time information on warehouse shipments and shop-floor inventory levels.



prevented widespread use.

Almost all the products in the Future Store have electronic labels. These labels receive price information directly from the merchandise management system via the radio network using base stations in the ceiling. Price information is transmitted simultaneously to the shelf and checkout point to avoid price differences because of erroneous labeling. The price labels are equipped with an easy-to-read digital LCD, battery and radio receiver.

One of the most talked-about technical novelties of the Future Store is RFID. It's a

See Stores, page 34

Takes

■ **Network Associates' McAfee Security** division unveiled its **Spam-Killer** line of anti-spam appliances that can be configured to block unsolicited e-mail using rules-based scanning and scoring. The three models are the \$1,700 SpamKiller e250, which can filter 25,000 Simple Mail Transfer Protocol messages per hour; SpamKiller e500, which costs about \$7,700 and can filter 40,000 SMTP messages per hour; and SpamKiller e1000, which costs about \$12,600 and can filter 60,000 SMTP messages per hour.

■ **Sygate** has beefed up its security software making it possible to secure all endpoints on a network — servers, desktops, via remote access

or on the LAN — by making sure they are compliant with corporate security policies. **Sygate Secure Enterprise 3.5** software can deny or restrict use of corporate networks by any machine running a Secure Enterprise agent. Agents check whether machines have the proper operating system configurations, appropriate patches and security applications such as firewalls, anti-virus and intrusion detection. Devices that come don't comply with the policies can be monitored, blocked from network access or referred to update servers. Another new feature with the 3.5 release called Policy Arbitration lets an individual user control what other machines can access on his machine. The software is compatible with Windows operating systems from Windows 95 through Windows Server 2003. Version 3.5 ships now and costs \$15 to \$70 for a single seat, depending on the features enabled.

'NET
INSIDERScott
Bradner

Protecting the public from innovation

Vonage, a voice-over-IP provider, thought it looked a lot like an ad from a telephone company and complained to the PUC. Ostensibly, the Commerce Department was worried that Vonage did not do the right thing when it came to supporting 911 emergency calls. A spokesperson for the Commerce Department was quoted as saying that Vonage should not be permitted to operate in Minnesota if its 911 implementation was not up to standards. And, by the way, Minnesota has a bunch of taxes that apply to phone services, and the state is involved in setting the rates for phone services.

There are a number of intertwined issues here:

- 911 services depend on knowing where someone is. This is easy when there is a dedicated wire for the phone service, hard to impossible when someone can plug the phone into any Internet connection anywhere in the world.

- Even if Vonage could tell the emergency folks exactly where the caller is, it would not be compatible with the emergency systems because they depend on receiving a phone number that they look up in a database to find a street address.

- Vonage does not advertise that it provides 911 service (but it does seem to have some way to provide something like it), so should the company be required to provide something it does not advertise?

- When does a voice interaction application become a phone service — is voice-enabled instant messaging a phone service that needs to support 911?

- How much of this is actually the regulators trying to protect the incumbent phone companies and the revenue streams from them?

When there was only one phone company in any an area, there might have been a good reason for the regulators to define what services that phone company had to

offer and at what price. But because the Internet lets an infinite number of companies and individuals offer the equivalent of phone service in the same area, is the regulation still needed to protect the consumer? Real competition between providers pushes innovation and lowers prices. Somehow I don't think it's likely that regulations from the PUC will have the same effect.

Maybe these regulators should insist on truth in advertising, such as requiring ads to say that 911 is not provided, and let customers decide what they want. That seems to work in many other areas.

Disclaimer: I'm sure Harvard trains some regulators; I hope they are not as good at ignoring the interest of consumers. But the above is my observation.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

Stores

continued from page 33

technology that is high on the priority list of Metro and other big European retailers, such as Tesco in the U.K. and Carrefour in France, not to mention the European Central Bank, which is struggling to stem the flood of counterfeited euros.

But RFID also has been deeply criticized by privacy advocates, such as Consumers Against Supermarket Privacy Invasion and Numbering. The group worries that such technology could create an Orwellian world where sales clerks or law enforcement officials could read the contents of a handbag with the wave of a wand. Consumer concerns about RFID have prompted Wal-Mart to scale back ambitious plans for deploying the smart-tag technology.

Privacy issues aside, RFID systems have come a long way from their origins in World War II when the U.S. government used transponders to distinguish friendly aircraft from enemy aircraft. Today they're being used, albeit in limited numbers because of the cost of manufacturing the chips, for delivering packages, handling luggage and monitoring highway tolls.

A typical RFID tag contains a computer chip and an antenna. Unlike bar codes, which need to be scanned manually and read individually, RFID tags don't require line-of-sight reading. So it's possible to read hundreds of tags a second.

Moreover, when stimulated by a radio signal, the chip transmits a unique code to identify the product to which the tag is fixed. This unique identifier carries not only the product's universal product code as bar codes currently do, but also gives that item its own unique identification. For example, instead of a bar code saying: "This is a box of Brand X detergent," the RFID chip says: "This is box No. 12345 of Brand X."

If the difference is subtle, the potential is

A huge challenge, says Gerd Wolfram, project manager of the Future Store, is managing the data generated from the movement of tagged products.

huge. For instance, a retailer quickly could trace and remove a bad lot of canned goods.

Metro is using two types of RFID technology in the store: one operates at the 13.65-MHz high-frequency range; the other uses the 900-MHz to 1000-MHz UHF band. The high-frequency RFID technology is used to track individually tagged items within a 5-foot range inside the store. The UHF version tracks pallets and boxes, and can read at a distance of up to 22 feet.

A new system being tested in the Future Store involving RFID tags is the "smart shelf." Tagged on shelves with embedded readers that communicate with the merchandise management system via the WLAN. The shelves recognize when tagged goods are removed or replaced, and report the movement of goods to the system. A big advantage is that the shelves trigger requests for fresh supplies.

Another RFID application under testing is delivery. Pallets and boxes are tagged at Metro's distribution center in Essen, Germany, and recorded as they pass through a gate in the Future Store. The system is designed to provide real-time data on warehouse shipments and inventory.

A huge challenge, says Gerd Wolfram, project manager of the Future Store, is manag-

ing the data generated from the movement of tagged products. SAP is testing an RFID inventory control system aimed at connecting every piece of RFID technology to the company. Intel, together with SAP, is a principal technology partner behind the Metro pilot, provides the technology to crunch the these numbers.

If RFID tags replace bar codes, Metro foresees PSAs and checkout counters being equipped with tag readers. Readers integrated in the PSAs automatically would register what shoppers have in their carts.

Of the Future Store's nearly 40,000 products, only around 30 carry individual tags, including razor blades from Gillette, cheese from Kraft Foods and shampoo from Procter & Gamble.

The day when RFID tags replaces bar codes, however, could be several years away, Wolfram says. The price of the chip, he says, is a big factor. "The current chips cost between 30 cents and 60 cents," he says. "For us to deploy RFID chips economically, the price will have to come down to around 2 cents."

If the price of manufacturing RFID chips is a concern now, the issue of privacy could prove a potential drawback. In April, fashion retailer Benetton Group postponed plans to roll out RFID tags in one of its clothing outlets after protests from privacy groups. Philips has responded to these growing fears by implementing a new feature into its tags that disables them at the point of sale. Gillette also says its use of RFID tags is to improve supply-chain management efficiency, and says its focus is on tracking pallets and cases, not customers.

Metro is aware of the privacy concerns linked to RFID, Wolfram says, and will do what is necessary to ensure that consumers' privacy rights aren't violated.

Blau is a correspondent with the IDG News Service's bureau in Düsseldorf, Germany.

Flamenco

continued from page 33

servlet-based proxies are being replaced with a protocol engine that utilizes an embedded real-time database.

Flamenco also has added what it calls a "shock absorber," which is designed to ease upgrades to the proxies as various Web services protocols mature, such as the recent upgrade from Version 1.1 to 1.2 of the Simple Object Access Protocol (SOAP). The proxies can be updated on the fly without missing any SOAP messages or having to reboot.

The company also has added support for WS-Security, which IBM and Microsoft developed and has become the de facto security standard for Web services. The Organization for the Advancement of Structured Information Standards is finalizing the specification.

"In order to build real Web services beyond point-to-point integration they need to be managed," says Ron Schmelzer, an analyst with ZapThink.

Schmelzer says Web services management products from Flamenco and competitors such as AmberPoint, Actional, Confluent and others are starting to mature. He says support for WS-Security should be contained in management products that must secure access to Web services. Schmelzer says the shock absorber should help shield users from the evolving lineup of Web services protocols.

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A black and white photograph of a person rappelling down a steep, layered rock face. The person is wearing a dark t-shirt, shorts, and a harness, and is holding onto a rope. The rock face is textured and shows distinct horizontal layers. The background is a clear sky.

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Spam fighters redouble their forces

NaviSite lures spam haters with managed service.

■ BY JENNIFER MEARS

John Knapp, executive vice president at Producers Assistance, a personnel company in Houston that serves the energy industry, was ready to give up on e-mail.

"I was getting 200 spam messages a day," Knapp says. "It was uncontrollable."

He wanted to filter out the spam, but wasn't happy about the prospect of having to implement and manage anti-spam software. Instead, he signed up for a hosted service from his messaging application service provider Interliant, which offers a managed spam-blocking and virus-detection service through its partner, Postini.

Managed infrastructure company NaviSite, which acquired Interliant and its spam- and virus-blocking service earlier this year, expects other companies to follow Knapp's lead. Last week, NaviSite an-

nounced a special introductory offer for its Managed Spam Filtering service that waives set-up charges and discounts the service 25% for customers who sign one-year contracts. John Whiteside, director of product marketing for NaviSite's messaging services, says pricing for the service varies but typically includes a \$250 set-up fee and "a couple of dollars per mailbox per month."

Postini's technology analyzes IP addresses and all text and HTML parts of a message against "heuristics-based expressions" in real time to weed out spam. End users can modify the filters to ensure that legitimate e-mail doesn't get blocked.

While dozens of companies, such as NetIQ, Symantec and Tumbleweed Communications, offer anti-spam products, only a handful, including FrontBridge Technologies and Postini, offer spam filtering as a hosted service. Both companies let customers set filtering controls, but Masha Khmartseva, a senior analyst at Radicati Group, says Postini lets end users set up their own profiles, rather than requiring a mail administrator or authorized user do it.

The benefit of a hosted service, analysts say, is that companies don't have to deal with deploying, managing and updating the software. In addition, companies can save money on bandwidth because messages are scanned in remote data centers so inappropriate messages never enter customer networks.

"There is no question in my mind that we're saving money," says Knapp, who says his 200 unwelcome e-mails per day have been whittled to about a dozen. "I expect to save money on the amount of bandwidth that we're not paying for, because that's how we pay for our mail hosting. The more stuff we move back and forth, the more we pay, so by eliminating it from ever coming here, we're cutting down the cost of our service."

To help companies determine the financial effect that spam is having on their bottom line, NaviSite has set up a spam cost estimator on its Web site. ■

Messaging security services vendor lands funding.

■ BY BOB BROWN

Last December, after signing on with a spam-filtering service, national law firm Gray Cary had about 47% of its 661,000 incoming messages blocked. Last month, the firm saw about 65% of its 1.1 million messages banned from arriving in end users' mailboxes.

With spam volumes showing no signs of falling, Gray Cary has had no choice but to have a solid anti-spam system in place, says CTO Don Jaycox.

"We pretty much used to hear constant complaints, but now I just don't hear them," he says.

Gray Cary's anti-spam needs are being met by FrontBridge Technologies, a provider of messaging security services that last week announced it has raised \$8 mil-

lion in venture funding.

While rampant spam, in addition to proliferating viruses, have made e-mail management a huge challenge for many companies, the onslaught has been a bonanza for vendors. Kirk Walden, national director of venture capital research at PricewaterhouseCoopers, says nearly \$125 million has been invested in e-mail management companies over the past year and a half, with many targeting the spam problem.

FrontBridge received its latest investment from BA Venture Partners and Sierra Ventures, and now has compiled \$18 million in funding over three rounds. The company started up in 1999 and began offering services two years ago. FrontBridge says it has roughly 700 paying customers (the service costs about \$18 per user) with anywhere from 100 to 100,000 seats.

The company plans to use the funds to expand its sales team and network of data centers. The data centers — FrontBridge has seven in the U.S. — intercept e-mail on its way into customer networks and ensure it's legitimate (and virus-free, if the customer chooses to use the vendor's anti-virus service) before forwarding it. New data centers are slotted for London and Singapore.

FrontBridge uses a variety of techniques

to filter out spam. These include a proprietary blacklist, rules-based scoring and a "fingerprinting" technique that lets the company identify spam based on mail filtered among its entire customer base. Customers can use console software to examine their spam situation and review reports.

The company says only one in 250,000 legitimate messages is filtered out mistakenly as spam. That's a good thing, Jaycox says, because the law firm can't afford to have its dealings with clients compromised.

"I had a big fear of false positives," he says. "The legal business has shifted dramatically over the last five years where a lot of business is done through e-mail."

Industry watchers say that given all the vendors in the market, anti-spam services and products could quickly become commodities.

Companies such as FrontBridge that have branched out into anti-virus and disaster-recovery services have the best chances of sticking around, says Dan Keldsen, senior analyst and director of IS at Delphi Group, a consulting firm that has been using FrontBridge's service for about 10 months.

"People are all over the place in what they're using to fight spam, since there are so many choices," he says. ■

Costly problem

The Radicati Group estimates that protecting user mailboxes from spam costs companies about **\$49** per mailbox per year and could grow to \$257 per mailbox by 2007.

Short Takes

■ Managed hosting firm

Rackspace this week is expected to unveil a new security service to combat distributed denial-of-service attacks. **PrevenTier** monitors all traffic entering Rackspace's network with a combination of proprietary intrusion-detection technology and commercially available products. PrevenTier can handle more than 30 million packets per second, the company says. PrevenTier uses **Arbor Network's Peakflow** distributed DoS technology to model normal network behavior and then search for irregularities, which it flags, reports on and suggests corrective action. If malicious activity is suspected, PrevenTier routes that traffic through Riverhead Networks' **Riverhead Guard**, which uses a multi-verification process to ensure that legitimate traffic continues to be delivered. PrevenTier starts at \$350 per server, however the per-server price decreases as more servers are added.

PROFILE: FRONTBRIDGE TECHNOLOGIES

Location: Marina Del Rey, Calif.

Founded: 1999

Primary business: Secure messaging services.

Management: President and CEO Steve Jillings, formerly executive vice president of IT services company Voyus; CTO Charles McColgan, former vice president of technology for Paramount Digital Entertainment.

Funding: \$18 million over three rounds; investors include BA Venture Partners and Sierra Ventures.

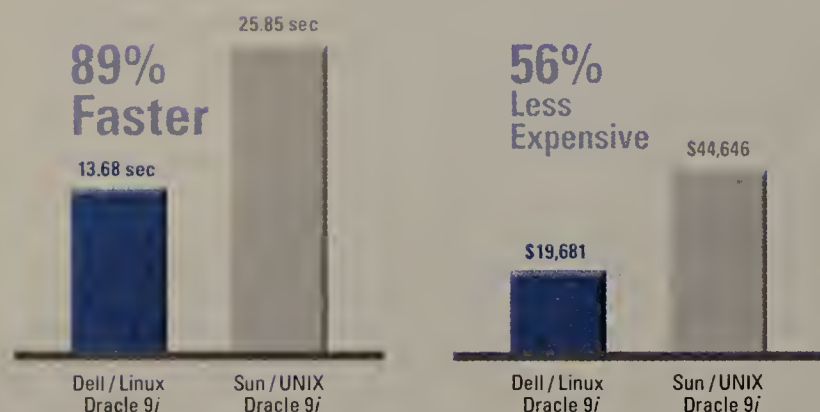
Financing: Privately held; anticipates reaching profitability in 2004.

Fun fact: Changed its name from Big Fish Communications in January. The new name refers to the company's efforts to be a "front line of defense" and a "protective bridge for e-mail."

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EYE ON THE CARRIERS

Johna Till Johnson



Sanity clauses for contracts

kinds of outs. If anything, they'd prefer to provide refund credits worth a few thousand dollars. Unfortunately, these aren't substantive enough to force a telco to make major operational changes. Only the threat of losing customers can do that. So to ensure the right to leave, your contract should include out clauses addressing the following situations:

Chronic or acute violations of the service-level agreement. Most service providers are happy to provide refund credits if a customer can prove the SLA was violated. But that's not good enough. If the service provider grossly violates the SLAs (for example, latency, packet loss or availability exceeds 250% of the agreed-upon limits) or regularly does so (such as three or more SLA violations in a month), you should have the right to terminate the contract.

Mergers, acquisitions or divestitures. Let's face it: Your company could acquire another company with better telco rates. Or it could be bought. And so could the service provider. In any case, you should have the unilateral right to terminate the contract—again, with no financial penalty.

Technology refresh. Let's say another

provider offers you a service (such as Secure Sockets Layer-based VPNs) that you'd like to have. And let's say your current provider doesn't offer this service. You should provide them the option to offer this service within a reasonable time (say, 90 days) or have the right to switch to a provider that meets your needs.

Chronic billing errors. Most telcos don't have the infrastructure in place to offer timely, accurate bills. That's their problem. If they try to saddle you with the additional costs of ensuring billing accuracy, you should have the right to walk. Either the telco should fix its billing support system or cut you some slack.

As noted, most telcos won't like these contracts. Too bad. Your business is what keeps them in business — so either they should sign up or expect to lose your business to someone who's willing to negotiate. Now that that's settled... see you at the beach!

Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

It's the dog days of summer: hot, humid and beset with the occasional multi-state power outage. While the rest of the world is off at the beach or teeing up on the course, many telecom managers are hard at work negotiating next year's telephone company contracts.

Herewith, some ways to ensure those contracts are more resilient than our national energy infrastructure. The best protection is to craft clauses that let a company terminate the contract without being assessed a fee, under as many circumstances as possible. Why? Because such "sanity clauses" are the only way to ensure that your company will get the telco's undivided attention. Usually a service provider will notice if it's about to lose millions of dollars in revenue per year. (If nothing else, that's a healthy chunk of an account rep's commission.)

Most telcos don't want to offer these

Router sales signal carrier activity

Research firms say IP services are driving demand for equipment.

■ BY JIM DUFFY

Two new reports show that the market for high-end routers has renewed life — perhaps a sign that carriers are finally starting to reinvest in their network infrastructures.

The worldwide high-end router market grew between 6% and 10% in the second quarter, according to separate data compiled by market research firms Gartner and Dell'Oro Group.

Gartner says the second quarter marks the first quarter of growth in this market since declines began a year ago, which followed massive capital expenditure cutting by service providers.

The new numbers might be "an early signal" that the market is poised for a recovery next year, says Gartner analyst Jennifer Liscom. "Both Cisco and Juniper reported that service providers are starting to buy again," she says.

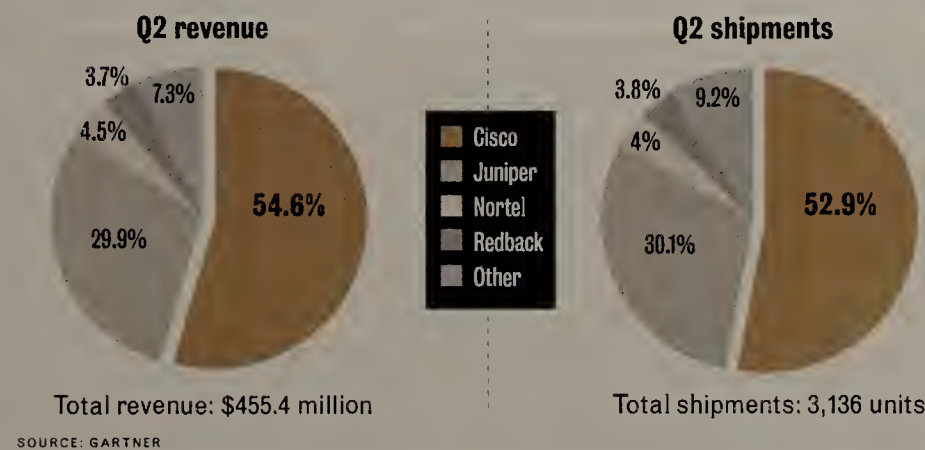
The worldwide service provider router market — which Gartner defines as any carrier-class multigigabit system for core or edge duty — totaled \$455.4 million in the second quarter, a 6% increase from the first quarter, according to the firm.

Gartner found Cisco to continue its leadership in the worldwide service provider router market, claiming 54.6% of revenue and 52.9% of shipments, followed most closely by Juniper in both categories (see graphic).

Nortel boosted its revenue almost 80% in the second quarter with large shipments to China, and displaced Redback

Chasing Cisco

Cisco continues to lead in worldwide market share for service provider router revenue and shipments.



Networks as the No. 3 supplier. Redback had an "unusually weak" quarter while undergoing a financial restructuring, Gartner says.

Liscom says she expects growth to continue for the next few quarters as carriers continue their IP network buildouts to meet and stoke demand among businesses for VPN services.

"Things are starting to look like we're progressing to this IP network we've been talking about for so long," she says.

Dell'Oro Group says worldwide sales of 10G bit/sec systems, used predominantly in the IP core, hit \$170 million in the second quarter, an increase of 10% from the first quarter.

But the overall router market was flat, at \$1.5 billion, the firm reports.

Router sales have hovered at this level for five consecutive quarters, with minimal quarter-to-quarter fluctuations, Dell'Oro says.

Dell'Oro also found that Cisco retained its market leadership in 10G bit/sec systems — but its revenue grew only 2%, compared with No. 2 Juniper's 23% gain, and No. 3 Avici Systems' 32% growth. ■



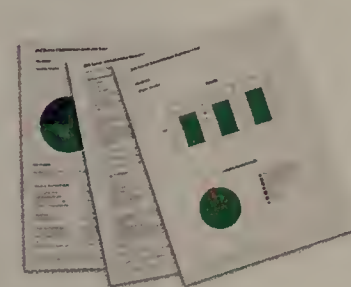
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Technology Update

■ AN INSIDE LOOK AT THE TECHNOLOGIES AND STANDARDS SHAPING YOUR NETWORK

SATA reduces storage costs

Interface technology for connecting storage devices to client apps promises increased performance.

■ BY SCOTT CLELAND

Serial Advanced Technology Attachment is an emerging standard electronic interface technology. SATA promises to exceed its predecessor, Parallel ATA, by delivering better performance at a fraction of the cost of traditional storage technology such as SCSI or Fibre Channel.

As the name suggests, SATA is simply a serial link or interface standard used to control and transfer data and information from a server or storage appliance to a client application. SATA is used to connect storage devices such as hard disk drives to motherboards and can increase system performance, improve efficiency and reduce development costs greatly.

Parallels and differences

To understand the benefits of SATA, a closer examination of Parallel ATA is required. Parallel ATA, a hard disk drive technology based on the Integrated Drive Electronics (IDE) interface standard, is used for the transfer and communication of data between a computer mother-

board's bus and disk storage devices.

Many low-end network-attached-storage (NAS) devices use Parallel ATA drives because of the cost benefits. Moreover, there are numerous high-bandwidth applications such as backup and recovery, video surveillance, video manipulation and near-line storage that use disks instead of tape.

The configuration of storage devices using SATA is much simpler than its predecessor, thanks to its sleeker form factor. SATA uses longer, thinner cables than Parallel ATA, which uses bulky, fragile and short cables. SATA also uses a seven-pin data connector as opposed to the 40-pin found in Parallel ATA.

Bulky cables connected to disk drives are more difficult to set up, block airflow and induce heat, all of which affect the overall performance and stability of hardware systems. SATA's cables are much simpler to route and install, and the compact nature provides additional space on motherboards and disk drives.

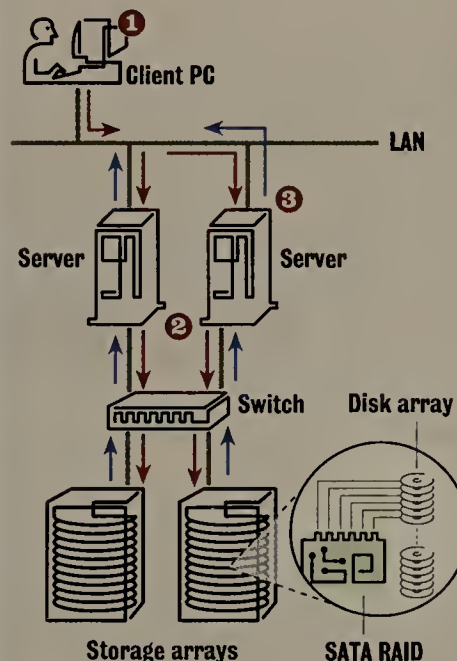
SATA also uses low-voltage differential signaling, which is consistent with low power and cooling requirements. Signal voltages have been lowered from 5 volts on Parallel ATA to a mere 0.7 volts on SATA. This enables lower power handling on a disk drive and reduces the size of a switch controller.

The interface technology uses 8B/10B encoding, a method for encoding eight-bit data bytes to 10-bit transmission characters. Using serial technology with eight-/10-bit encoding improves overall transmission and completely bypasses the parallel transmission problems. This high-data-integrity scheme provides the essential embedded

■ HOW IT WORKS

SATA

Serial Advanced Technology Attachment is used to control and transfer data from servers or storage appliances to clients.



- 1 Client sends request to server for data.
- 2 The request is routed through the server to the SATA RAID array, where the data is read or written.
- 3 The requested data is processed at the server and sent from the RAID array back to the client.

timing and significant data-integrity checking provisions that high-speed transmissions require.

By using point-to-point topology as opposed to a bus-based architecture found predominantly in Parallel ATA or SCSI technologies, SATA can deliver full bandwidth to each connected drive, thereby improving overall performance. With a road map consisting of three generations of increased data-transfer rates at 150M, 300M and 600M bit/sec device burst rates, SATA is poised for 10 years of steady but healthy growth, according to the Serial ATA Working Group. The new standard also is backward-compatible, making it simpler to convert from Serial to Parallel formats and vice versa, and also should speed the adoption rate of SATA.

Future deployment

With flexible thin cables, hot-plug connectors, improved data reliability and protection, along with full software compatibility, SATA will create huge market opportunities for inexpensive network storage products. Many disk drive and chip manufacturers have announced products supporting SATA, and there has been widespread industry support through the Serial ATA Working Group, comprising more than 80 vendors.

Currently, SATA costs about 15% more than Parallel ATA, but the gap is closing fast, and SATA is expected to be on par with today's Parallel ATA in the near future.

Cleland is a technical marketing manager for 3ware. He can be reached at scleland@3ware.com

Got great ideas?

■ *Network World* is looking for great ideas for future Tech Updates. If you want to contribute a primer on a specific technology, standard or protocol, contact Amy Schurr, senior managing editor, features (aschurr@nww.com).

Ask Dr. Internet

By Steve Blass

Several of our Windows computers have been acting strange, and we suspect we've been compromised by MSBlast or some variant. Can you elaborate on the root kits you mentioned last week — what do they do? And is the only fix for this attack to reformat the computer?

One root kit we found had installed an mIRC client that was sniffing passwords off the network and sending them back to an IRC channel. The system

was riddled with copies of Trojans based on klan-door and aristotles. Symantec, McAfee, Microsoft and others have tools that clean up a system without reinstalling everything, when starting from scratch is not an option. Look for and remove anything named msblast.exe from the hard drive and from the registry. Get stinger from www.nai.com and run that. Get the W32Blast removal tools from www.symantec.com and run that. Get TheCleaner from www.moosoft.com and run that. Install the

Microsoft RPC patch. Install all your critical Windows updates. Install the MS RPC patch again. Back up everything. Update your virus software. Boot into safe mode, run a virus scan and search your computer for new directories under system and system32.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet@changeatwork.com.

GEARHEAD INSIDE THE NETWORK MACHINE

Mark
Gibbs



Store my data and make it snappy

in place yet.

After that you'll want to configure the disk drives. With the Snap Server 2200 you can elect to have two individual 113G-byte drives; run the drives in data protection so the second disk automatically backs up the first (disk mirroring); or run the drives as one large disk (JBOD) using disk striping, which results in a virtual drive of 227G bytes.

Independent drives

Drew Meyer, the product manager at Snap, wrote to me after last week's column to note that, "SnapOS [Snap's appliance operating system based on Free BSD] is able to handle the drives as two independent hardware devices, so the data is actually physically separate. In our experience, few folks actually use this, but we treat JBOD as a feature. Drive spanning, or drive concatenation, we actually don't do. If we are striping, we have both heads writing at the same time."

You can disable HTTP access for users while administrators continue to have access to the Web interface. If you let users access via the Web interface, they can browse whatever subdirectories and files are allowed by their security

settings.

Along with Microsoft networking, the Snap Server supports Novell, Apple, Unix (NFS) and FTP networks. It also allows SNMP-based management, which you can set to be read/write or read only.

Through the Web interface you set up and manage users and groups and network shares. Note that you control access to disk subdirectories by user accounts but not by the type of network share — in other words when you define a share it is accessible through all enabled network-sharing protocols.

The Snap Server provides access control not only to subdirectories but also to files, and you can set disk quotas on a per-user basis. We had trouble with this feature running in mirrored-disk mode — we enabled quotas but when we went back to the quota set-up screen the feature had apparently not been set. Assuming the device might need rebooting we told it to restart (a "soft" restart), which it did but then the server disappeared from the network.

After the server sat for 15 minutes with the drive light solidly on but no Web interface enabled, we assumed it had locked up so we hit the power switch and restarted it. This time the Web interface came up but

the drive was shown as "unavailable." We checked the disk-status page and the server log, but there was no information as to why the disk was unavailable. It eventually became available, and after talking to the chaps at Snap we determined that the server had been running a disk check both after we first did the soft restart and then when we did the power-down restart.

One shortfall

The lack of accurate disk-status reporting is the only weakness we identified in this product, and the fact that after the "soft" restart the Web server didn't start looks like a bug.

However, since then the server has performed very well, rivaling our Linux server's Samba server performance. The bottom line is that the Snap Server 2200 (\$1,500 retail) is, our problems notwithstanding, a good workgroup-level storage appliance. It is very easy to configure, fast, has all of the services you are likely to need and has a good management interface. We'll let you know next week what we find out about the bug.

Support your thoughts at gearhead@gibbs.com.



Cool Tools

Quick takes
on high-tech toys
By Keith Shaw

Tiny mouse, hidden keyboard

user can set the mouse for 400, 600 or 800 dots per inch (dpi). IOGear says the 800-dpi setting offers twice the resolution of a standard mouse, which would please Web designers and graphic artists who strive for pinpoint accuracy. Trying the mouse on different settings didn't seem to affect my mousing ability or accuracy, but I'm not a graphic artist or Web designer.

One downside is that the positioning of the right mouse button may be too close to the left button. Several times I found myself trying to left-click and accidentally hit both buttons with my fingers.

A sunken keyboard

We were intrigued by the Kinesis Advantage Pro USB keyboard. The company's primary objective was to create a comfortable and ergonomic keyboard that could prevent repetitive stress injuries. The large frame is designed to house an ergonomically recessed keyboard and as such is considerably larger than a standard keyboard. The recessed keys are designed to limit the amount of movement a user makes when typing.

Amateurs beware, however — it takes some time to get accustomed to this keyboard. But once you get acclimated to the placement of the keys and thumbs, you might be pleased with the comfort and speed of your typing and navigation. Even so, after some weeks of testing we still found some keystrokes to be challenging. The hardest thing to get used to were the redesigned thumb keypads, but with a bit of practice the keyboard was more comfortable.

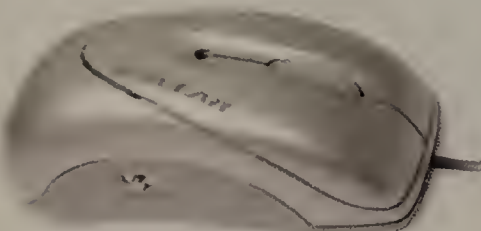
In addition to the basic keys, the keyboard includes function keys (you can map macros to them) and a foot pedal. The foot pedal let us strike key combinations (such as Alt-S, Alt-Tab and CTRL-S) with our foot. Pretty cool!

The keyboard also includes two USB ports for adding devices such as a numeric keypad, digital camera or other USB device. The keyboard supports Windows, Macintosh and Linux computers.

The price of \$359 might be a bit daunting, but if it can prevent or help those with repetitive stress injuries, it might be worth the price. It's not for everyone, but those who want an advanced keyboard should consider it. When buying direct from Kinesis, there is a 60-day return policy, so users can try it out.

Shaw can be reached at kshaw@nww.com. Senior Network/Telecom Engineer Peter Hebenstreit contributed to this column.

We're all about juxtaposition here at the Testing Zone, so we present two reviews of a miniature mouse and a larger keyboard that can improve comfort when typing.



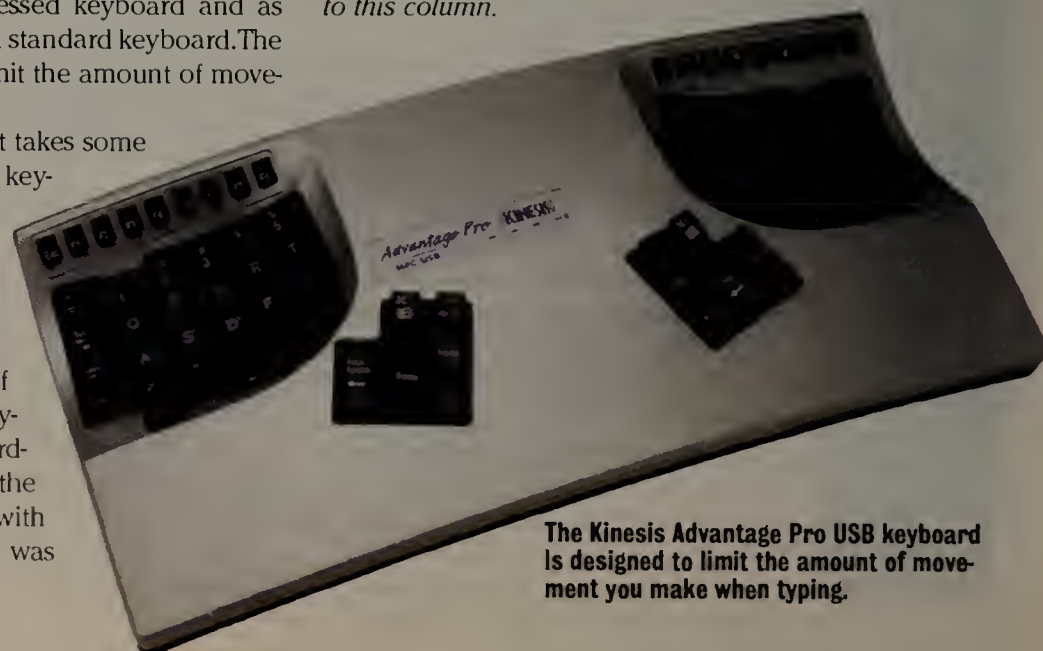
IOGear's tiny and extremely light USB Optical Mini Mouse 800 is perfect for mobile users.

Tiny mouse impresses

When it comes to portable miniature mice for travel, I've always felt the smaller, the better. Several companies have come out with slightly smaller versions of their regular mouse, but they've still been a bit big and bulky to throw into a laptop bag and carry on trips.

So I was happy to receive the IOGear USB Optical Mini Mouse 800 (Model GME222, \$30). It is extremely light and tiny, perfect for the mobile user. I have smaller hands, so having a smaller mouse is preferred (big-handed readers might find themselves too cramped with a miniature mouse). The Mini Mouse also has a scroll wheel, which adds to the functionality. I never realized how much I use the scroll wheel on a regular mouse until I noticed myself using the wheel on the Mini Mouse.

The Mini Mouse has adjustable resolution settings — a



The Kinesis Advantage Pro USB keyboard is designed to limit the amount of movement you make when typing.



DOMINANCE ARISES FROM GREAT BUSINESS DECISIONS

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EDITORIAL

Adam Gaffin

Let Fusion be your resource

How do you keep up to date on network technologies and issues? Step 1, of course, is right in your hands. But when you want to get up to speed on a specific technology or topic, chances are you head to the Web.

Over the past few months, we've been busy upgrading our topic-specific research centers on Network World Fusion (www.nwfusion.com) to make them even more useful. Each center features the latest breaking news and analysis on the topic, of course. But you also can turn to them for enterprise-specific tutorials and white papers — nearly 1,200 at last count — along with the latest downloadable applications (more than 500). And we've built a networking encyclopedia to define key terms. Follow the links from the relevant research centers or start browsing our links area at DocFinder: 7338.

Most of our research-center pages now have "XML" buttons that let you subscribe to a daily feed of the latest news and analysis via the XML subset known as RSS. We currently have 60 different RSS feeds (see the complete list at DocFinder: 7339).

It's all been a team effort: All of our reporters are now responsible for research-center pages in their beats, and they write a weekly analysis or point to an interesting new product or topic.

For example, Senior Editor John Cox looks at a spate of recent reports on the wireless market and concludes that people are going to remain tethered for a long, long time: "The 'Wireless Revolution' is still and will be forever a mirage" (DocFinder: 7340). Senior Editor Ellen Messmer, meanwhile, recently wrote what you could learn from a critical review of a large federal e-commerce effort (DocFinder: 7341).

When you get right down to it, though, who knows networks better than you and your peers? That's why we're also making our resources interactive. When Senior Editor Deni Connor noticed there aren't that many places for storage professionals to discuss their issues, she set up a storage community forum (DocFinder: 7342) — where users now are discussing the pros and cons of intelligent Fibre Channel switches (this is in addition to our existing forums, on topics from VPNs to the future of NetWare).

And starting this week, you can let your peers know what you think of all those resources we've listed — each now has a "review" button that lets you post comments for your peers to read, and for you to read what others have to say.

Take a look, and let us know what you think.

— Adam Gaffin
Executive Editor, Online
agaffin@nww.com

AT&T clarifies

The editorial "MCI: The second 100 days" (www.nwfusion.com, DocFinder: 7322) and Johna Till Johnson's column in the same issue, "Latest MCI 'scandal' isn't what it appears to be" (DocFinder: 7323) both contain erroneous assertions about AT&T's objections to the plan of reorganization in the WorldCom bankruptcy case.

AT&T has never called for liquidation of MCI/WorldCom. Instead, we'd prefer to compete with the firm on a level playing field rather than have to fight uphill against pricing disparities concocted as part of numerous fraudulent schemes.

And to clear up another misperception: AT&T filed when we did to protect the interests of our shareholders who have been victimized in the Canadian Gateway fraud. If we hadn't met the court's deadline to object, a short time after authorities alerted us to the scam, AT&T shareholders would have been handicapped in seeking to recover damages. AT&T seeks to ensure that MCI's proposed plan of reorganization does not preclude AT&T from pursuing its claims for damages resulting from the Canadian Gateway fraud in a court of AT&T's choosing.

Jim Byrnes

Vice president, public relations
AT&T Business
Bedminster, N.J.

Ships passing in the night

The huge layoffs in telecommunications have produced a strange situation for senior data communications and telecom workers. Senior jobs in the network and telecom sector have all but vanished from the Internet we created. As one of these workers, I am trying to survive on a contract job in another

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

field, hoping the economy will turn around and telecom will start hiring again. But the longer you stay away from the network and telecom sector, the more chance human resources will skip over your résumé for workers with up-to-date experience.

Like ships passing in the night, laid-off network/telecom workers are going in one direction and employers are going in another. This twist of fate will cost our industry much of the creativity and energy that captivated the economy for a decade.

Terry Gross
Atlanta

Day of the jackals

Mark Gibbs' Backspin column "The jackals of IT" (DocFinder: 7324) misses the point. Why should IBM buy out SCO? It's much better to let those SOBs die swinging in the breeze, hoping someone buys into their junk and pays them off. IBM's strategy of letting them die of starvation is much more satisfying. It's payback for all of us who had to work with SCO and its copyrighted, non-performing products.

Ray Williams
Catlett, Va.

My only complaint with Gibbs' column "The jackals of IT" concerns the jackal analogy. In the wild, jackals provide a necessary (albeit violent) element in the food chain. SCO seems more like a pathetic parasite attempting to somehow squeeze revenue out of a market in which it can no longer compete.

George Nezelek
Chicago

Think Microsoft has a monopoly now? Just imagine how strong it would become without the threat of Linux. If the jackals win, we'll be stuck in the proprietary Dark Ages rather than transitioning to the Age of Open Source Enlightenment.

Kurt Buff
Redmond, Wash.



More online! www.nwfusion.com Find out what readers are saying about these and other topics. **DocFinder: 7321**



**DEMO INSIGHT**

Chris Shipley

The mobile and wireless marketplace is growing rapidly. As technologists, we have become so enraptured with low-cost calling plans, new devices and a blanket of Wi-Fi that we risk missing the forest full of change because we're so enamored by the saplings of emerging technology.

Demomobile 2003, to be held Sept. 17-19 in LaJolla, Calif., seeks to remedy this by spotlighting significant products and trends affecting the mobile and wireless market.

The rapid adoption of mobile technology by individuals, combined with the subsequent opening up of enterprise networks and the onslaught of broadband to the home, is having subtle but profound effects on business and culture. As the personal computing business transforms into a device computing business, the node at the end of the network is no longer a computer; it's a person. Individuals are adopting device technology for themselves or driving the adoption of technology inside their organizations.

The beleaguered IT executive must decide whether to fling wide the arms of acceptance and manage the chaos as best as possible, or slam shut figurative doors to the server room and throw up a protective wall of policy and process to curb renegade end users. Neither option is comfortable, but ultimately an open policy will win out. Yet between now and then, IT executives must rethink network access, security configurations and — more importantly — their role as

Mobility changes everything

infrastructure provider in a vastly outsourced organizational model.

The situation isn't much better for the individual, who also is undergoing a gradual and profound change in large measure because of the adoption of mobile communications and data technology. Always-connected, always-on devices fundamentally change the way people interact with the network, companies that support it and one another. The lines between business and personal uses intermingle. And increasingly, it's not the device or the network that is always on — it's the individual who can never quite turn off and tune out the din of work and play.

Whether you think of yourself as the IT executive who must anticipate and respond

to changing requirements or the always-on individual for whom being connected is a way of life, Demomobile is the platform to explore this phenomenon and other important trends — and do so in the context of the new products, services and technologies that will shape the outcome of this discussion. About 35 products will make their debut at Demomobile.

Additionally, an array of top thinkers from major IT suppliers will share their visions of the unfolding mobile and wireless marketplace. To learn more about the conference, go to www.idgef.com/demomobile.

Shipley is executive producer of The Demo Conferences and a veteran technology watcher. She can be reached at chris@demo.com.

IT executives must rethink network access, security configurations and their role as infrastructure provider.

NetworkWorld On the road with SEMINARS & EVENTS

**ON SECURITY**

Winn Schwartau

There are no rules at DefCon, the world's largest computer hacker convention. Earlier this month, about 5,000 folks — including network and security folks of every ilk — attended the show, held annually at the Alexis-Park Hotel in Las Vegas.

Between the conference's "vendor area" and "hacking zone" were a few dozen round banquet tables, loaded with innumerable laptops, monitors, routers, cabling — and at least 23 antennas. Cheating is allowed at DefCon. In fact, it's expected.

I've hosted Hacker Jeopardy for 10 years, and part of the ritual is to catch people cheating, getting remote help from the audience or a distant room with wireless earphones. One year they tried to hack the answers out of my computer. Then they tried to download the memory files from the hotel computer that I had used to make hard copy printouts. It was all in good fun — with reasonable paranoia.

The lack of rules at DefCon includes massive violations of dozens of federal felonies: password theft, telecom interception, system penetration. If you go to DefCon, caveat emptor: Your mere presence makes you a target — all in good fun. The last thing you want is to see your name and passwords projected onto "The Wall of Shame."

So there you are, a fine upstanding corporate network type and you need to get a bit of work done. What do you do? Use the free high-bandwidth 802.11 wireless networks, right? Think again: Those 23 antennas are sniffing and air-snorting every digital broadcast stream for hundreds of yards. That's a real easy way to end up on the Wall of Shame.

You could elect to use the hard-wired LAN DefCon offers instead. But what dangers lurk? Is the DefCon system administrator storing traffic for later analysis? Will your communications become part of DefCon history and a question in next year's Hacker Jeopardy? Maybe, if you use the supplied network.

You could use your hotel room dial-up. It's slow, but it's secure, right?

DefCon is a hacker convention. In past hacker conventions, attendees

DefCon: All in good fun

have completely taken over the hotel phone systems. Yes, DefCon and the Alexis-Park Hotel have a strong détente in place, but I wouldn't advise using the hotel's telephone company networks for anything important. There's a better than even chance that the phones are compromised, too.

I found a method to communicate securely at high speed for free, and I never used the 802.11 networks except for the most mundane surfing. Nor did I need VPNs or tons of special gear. What I used is part of my usual travel and communications gear. (If you think you know how I did it, e-mail me. The first person with the correct answer will get a free copy of my latest book.)

Surviving DefCon requires a bit of stamina and knowledge, but therein is a tremendous unrecognized value to corporate security types. Everyone must be assumed to be a bad guy (all in good fun, though), and you can hack and break tons of laws legally.

Say you want to hone your wireless security skills. You get some tools from the 'Net, collect your 802.11 gear and listen. You find a network connection, identify computers on it, notice that many have file shares open, ports unclosed, and in you go! The rule at DefCon is if you're stupid enough to let someone break into your PC, then you deserve it.

Corporate security personnel can gain tons of hands-on experience in a few days for the \$75 admission price. Set up network attacks. Set up honey pots and invite attacks by baiting the hackers. It's all in good fun.

Anything goes. Learn about the latest in attacks, meet the creators of the tools you find on the Internet and practice in a real environment, without worrying the feds are going to come breathing down your neck; they're at the show, too, for the same reasons.

At DefCon, chaos rules, you're on your own, and you win or lose by your wits. It's all in good fun and highly educational.

Schwartau is president of Interpact, a security awareness consulting firm, and author of 14 books, including the recent Pearl Harbor Dot Com. He can be reached at winn@thesecurityawarenesscompany.com.

If you go to DefCon, caveat emptor: Your mere presence makes you a target — all in good fun.

49

Under attack: If your firewall or IDS system could talk, it would be begging for help. That's because hacker activity is coming from all over the world, round the clock. Seven days a week—and it seems to have nearly tripled in the past six months. In our two-week test period, the set of IP addresses we monitored, was scanned for open ports 96,000 times. And hackers came back looking for trouble 82,000 times. In our test case, the IP addresses under attack were at Tel Aviv University, but this could just as easily be you.

50

Alert overload: Let's say you're head of security for a mid-sized ISP and you're coming back from a two-week vacation. How many alerts did you miss? If you guessed 1.7 million, you're right. Of course, that suspicious traffic only amounted to a tiny fraction of the 3.3 billion packets flowing across your slice of the Internet backbone. And when you factor out false positives and simple-scanning activity, you're down to a mere 800,000 suspicious alerts. But it only takes one successful attack to bring down your network.

54

Security ROI: It's not that tricky to calculate the ROI of a server rollout. But how do you put a number on the return you get from not getting hacked? Sage Research's Kathryn Korostoff offers some suggestions.

Online

Hacker worldwide hotspots: www.nwfusion.com, DocFinder: 7337.

Danger zone

Internet hack activity soars due to automatic worm attacks.

■ BY CHRISTINE BURNS

How dangerous is the Internet anyway? We've all read about cyberterrorists, identity thieves, industrial saboteurs, credit card crooks, Web site vandals, hackers, crackers and script kiddies. But just how bad is it? Who's out there? Where are they coming from? And what do they want?

To answer these questions, we took a snapshot of Internet activity from three angles: on the Internet backbone for a look at raw traffic; directly outside an enterprise network; and at the firewall level of a group of corporate customers.

To see malicious traffic directly on the Internet backbone, we consulted i-Trap Internet Security Services in Cleveland. I-Trap tracked and analyzed a two-week sampling of surreptitious Internet activity collected from a regional ISP's trio of Snort-based intrusion-detection sensors. This data provides an in-depth view of attacks being thrown at corporate networks once the hackers have completed their scans and know their targets.

We tapped into an intrusion tracking and prevention system built by ForeScout Technologies sitting on the edge of a 10,000-node enterprise network serving Israel's largest university. There we could track what network reconnaissance was being done and pinpoint exactly which hackers were coming back to do damage.

We also tracked firewall logs for 24 corporate customers on i-Trap's network. (See an online charting showing the most frequently blocked ports at www.nwfusion.com, DocFinder: 7336.)

What we found is, well, in a word, spooky—in terms of the sheer amount of potential scans coming at any given network, the variety of ways hackers are looking to get into your network, the tenacity these hackers show and the fact that these attacks are coming at you from all corners of the globe, day and night.

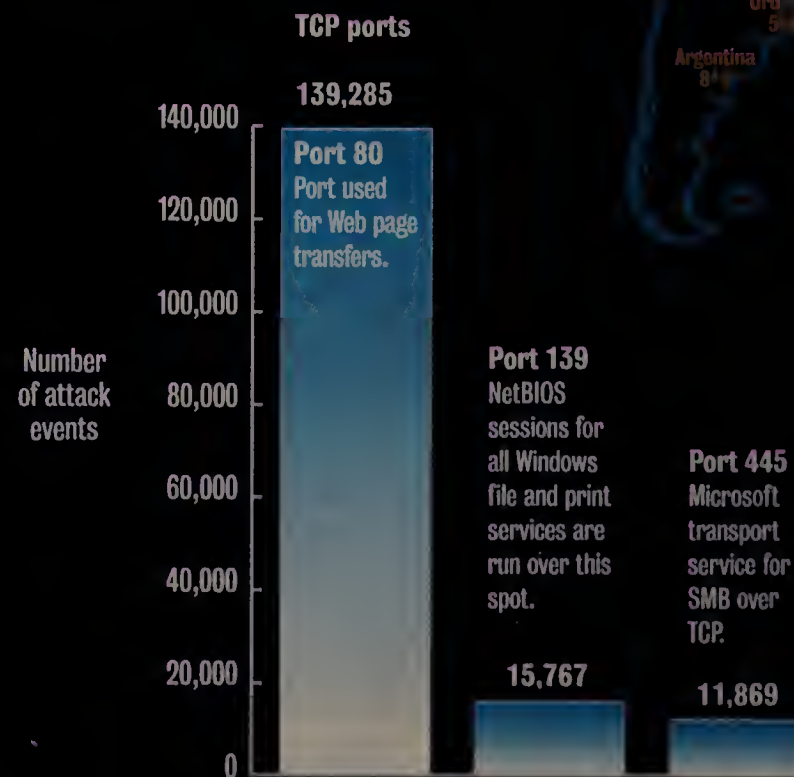
Here's what we found:

- The amount of potentially dangerous Internet traffic has tripled in some cases in just the past six months.
- Reconnaissance is a key contributor to the Internet background noise. Our samples show that between 45% and 55% of suspicious activity is hackers scanning for targets.
- Most hack attempts are the result of automated, scripted attacks launched from previously compromised machines.
- The main reasons hackers targeted these networks were to find computers they could use to relay spam, locate extra storage space for illicit files, and to take over machines that could be used as launching points for future attacks.

Where are they coming from?

In our two-week test period, we saw attacks from 99 countries. The highest number of attacks came from China, followed by the U.S., South Korea, Brazil and Germany. At the bottom of the list, we saw hacker activity coming from Togo, Honduras, Lebanon, Malta and Sudan. Our intrusion-prevention system could tell us the location of the machine sending the attack, but not whether it had been taken over by a hacker located somewhere else. Still, the results show that hack attacks are coming from just about everywhere. (See a complete country-by-country listing at www.nwfusion.com, DocFinder: 7337.)

- 5,000 or more attacks
- 1,000 - 4,999 attacks
- 500 - 999 attacks
- 100 - 499 attacks



Who's that knocking at the network door?

Automated worms account for 90% of hack activity

■ BY CHRISTINE BURNS

Between the early hours of July 10 and midnight July 23, the network supporting Tel Aviv University was scanned for open ports 96,000 times and withstood a barrage of 82,000 hackers from 99 countries returning to those seemingly open ports to see if they could wreak a little havoc.

So do those statistics make it a bad couple of weeks for university IT managers working to keep unwanted Internet visitors at bay?

Unfortunately, it's more like business as usual, says Oded Comay, CTO of ForeScout Technologies, whose ActiveScout intrusion-prevention technology helps pinpoint attempts and prevent attacks on this network that consists of more than 10,000 nodes, owns 128,000 public IP addresses and maintains a 100M bit/sec link to the Internet.

At least it's business as usual these days, Comay says, because of the rise of highly automated attacks and computer worms that wiggle their way into corporate networks at lightning speeds.

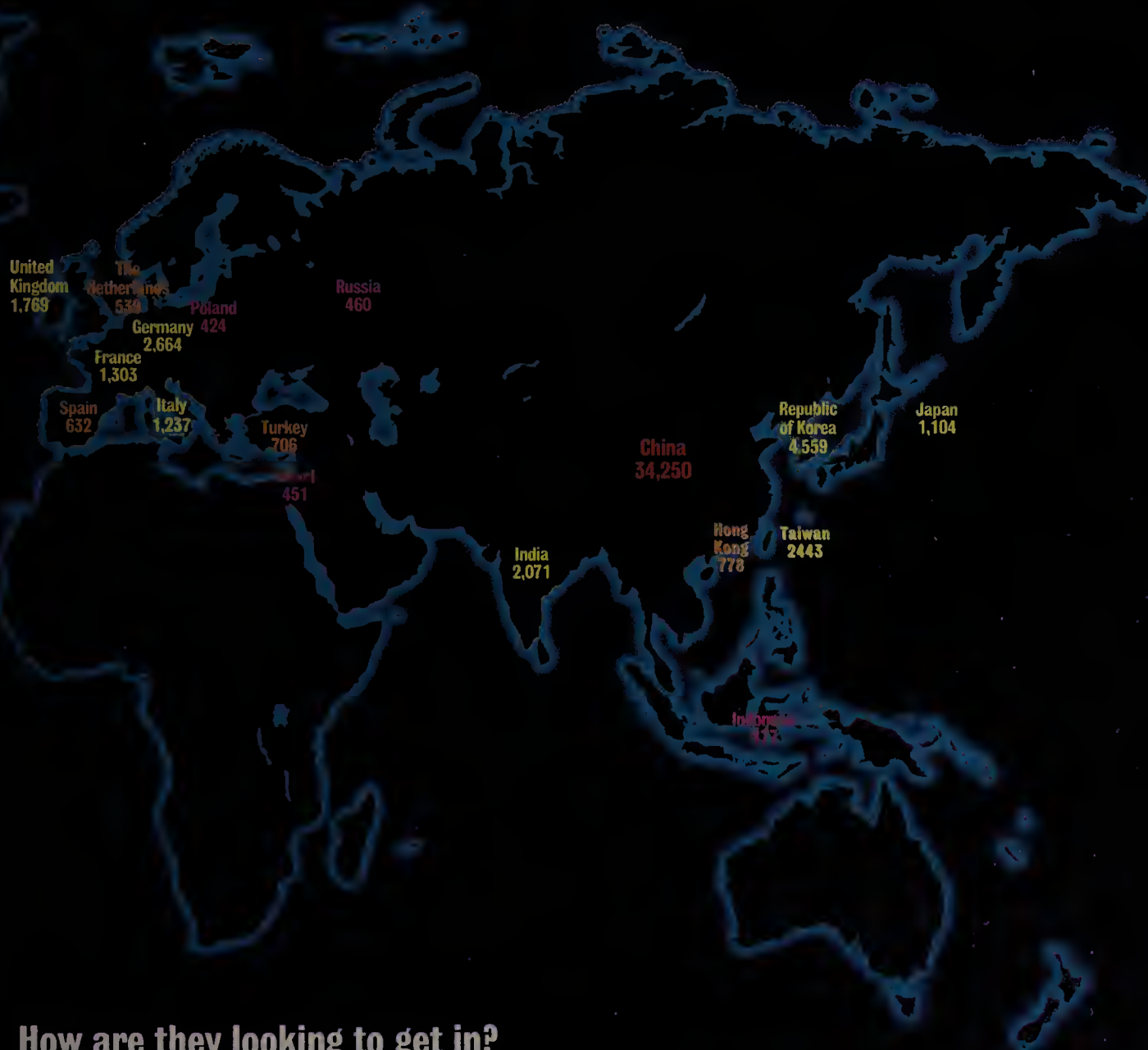
Operating on the assumption that hackers do reconnaissance before attacking, the ActiveScout sensor sits outside the university's primary firewall and watches incoming traffic for suspicious network probes and scans. When it identifies reconnaissance activity, it feeds the scanner in question counterfeit information, such as false resources, services, ports and IP addresses. If that same attacker tries to exploit the counterfeit information, ActiveScout denies access to the network.

I scan, therefore I attack

Except for a one-day blip in User Datagram Protocol (UDP) traffic, there was a 96.3% match between scans and identified attackers or, in ActiveScout terms, bites. In other words, virtually every scan was followed at some point in time by an attack from the same source.

The reason is worms. Because of their automated, rapid propagation mechanisms, worms accounted for at least 90% of the attacks, in general systematically scanning and biting in sync. If you take the geographical offenders in our sample, you can further document that the large number of attacks coming out of China and the U.S. were almost all automated.

According to the ActiveScout data, these worms



How are they looking to get in?

Of the actual 180,000 attack events (scanning activity plus actual break-in attempts) recorded in our two-week test period, 78% were directed at Port 80, which handles most Web page transfers.

Ports

TCP 135 Microsoft DCE locator service for remote service management.	ICMP 8 Port handles Ping requests.	TCP 21 Common port for FTP services.	TCP 1433 Common port for Microsoft SQL Server.	TCP 8080 Common port that contains HTTP and proxy servers.	TCP 3128 Port used for proxy services.	TCP 25 Port used to send e-mail.
4,160	3,276	1,773	1,147	603	348	320

Targeted ports

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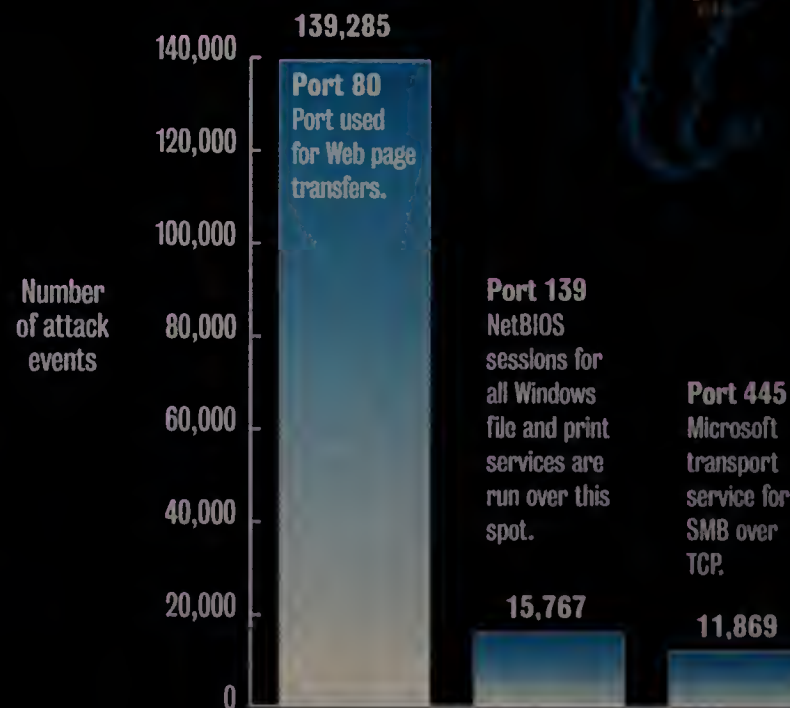
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Between the early hours of July 10 and midnight July 23, the network supporting Tel Aviv University was scanned for open ports 96,000 times and withstood a barrage of 82,000 hackers from 99 countries returning to those seemingly open ports to see if they could wreak a little havoc.

So do those statistics make it a bad couple of weeks for university IT managers working to keep unwanted Internet visitors at bay?

Unfortunately, it's more like business as usual, says Oded Comay, CTO of ForeScout Technologies, whose ActiveScout intrusion-prevention technology helps pinpoint attempts and prevent attacks on this network that consists of more than 10,000 nodes, owns 128,000 public IP addresses and maintains a 100M bit/sec link to the Internet.

At least it's business as usual these days, Comay says, because of the rise of highly automated attacks and computer worms that wiggle their way into corporate networks at lightning speeds.

Operating on the assumption that hackers do reconnaissance before attacking, the ActiveScout sensor sits outside the university's primary firewall and watches incoming traffic for suspicious network probes and scans. When it identifies reconnaissance activity, it feeds the scanner in question counterfeit information, such as false resources, services, ports and IP addresses. If that same attacker tries to exploit the counterfeit information, ActiveScout denies access to the network.

I scan, therefore I attack

Except for a one-day blip in User Datagram Protocol (UDP) traffic, there was a 96.3% match between scans and identified attackers or, in ActiveScout terms, bites. In other words, virtually every scan was followed at some point in time by an attack from the same source.

The reason is worms. Because of their automated, rapid propagation mechanisms, worms account for at least 90% of the attacks, in general, systematically scanning and biting in sync. If you take the top geographical offenders in our sample, you can further document that the large number of attacks coming out of China, and the U.S., likely are automated.

According to the ActiveScout data, these worms

propagate too quickly, and the time lapse between the scan and the bite is too minuscule to have been completely changed by a human. Worm activity also tends to be repetitive — they look for the same ports and bite on those ports on a mass scale.

According to ActiveScout officials who've been correlating data from multiple customer installations for more than a year, if you ignore the worm activity, you will see a scan-to-attack ratio of about 30%. This means that out of 10 scanners, three will return and actually bite. Differentiating the real hackers from the folks just playing with scripts for fun goes a long way in terms of your ability to filter through the Internet background noise to find the real threats.

Any port in the storm

Topping the list of scanning methods used against the university's network are attackers looking for open ports. In fact, port-scanning accounts for 96% of all the network scans. Next is the UDP service scan (3.7% of scans conducted). Scan types falling into that last 0.3% include scans looking for username and passwords, NetBIOS Domain logon information and SNMP management data.

However, it's important to note that the university goes to great lengths to sidestep worm attacks and huge amounts of network traffic facilitated by NetBIOS vulnerabilities, which potentially could infect all Windows-based machines. The university asked its ISP to filter all NetBIOS traffic before sending traffic over the university's link so the relatively low numbers for NetBIOS scans — only 100 in all — is a bit skewed.

To provide some context regarding just how big a role NetBIOS scans can play on a network, we tapped into a second ForeScout node protecting a midsize virtual company in California that sports 255 public IP addresses and a T-1 link to the Internet. The top five scans were in the same order as exhibited in our Israeli sample, but the percentages were more spread out. Port scans amounted to 50%, UDP scans, 20%, and both NetBIOS and username and password scans, 15% each.

Six months ago on this node, port scans and NetBIOS scans comprised the bulk of the activity, 56% and 43%, respectively. But it's also important to note that the sheer number of scans that hit this node grew by 260% between January and July.

What network services are they gunning for?

The ActiveScout also tracks the top services hackers are looking to influence in terms of the combined number of scans and bites, referred to as "attack events."

On the university's network, hackers overwhelmingly are looking to meddle in the Web page transfer services running on the university's Web servers across TCP Port 80. Second are Windows-based network services with hackers trying to get at them via Ports 135, 139 and 445, where they can attack Microsoft's DCE locator service, file and print services, and SMB over TCP transport services, respectively.

Other services of note are FTP services running over Port 21 that if hacked would let intruders store illegal MP3 files, for example; Squid proxy services running over Port 3128 that if compromised could be used as a spam relay; and Microsoft SQL Servers running on Port 1433. Port 1433 was big news when MS-SQL Slammer hit in January, but because the university still is seeing noticeable scans hitting that port, indications are that there are still SQL worms out there looking — and likely finding — unpatched machines and attacking them.

Ray Rotem of ForeScout Technologies contributed to this story.

What do they want?

Most hackers are looking for spam relays; others want to spread worms or gain control of your computers.

■ BY CHRISTINE BURNS

One million, seven hundred thousand security alerts during a two-week stretch in July seems like a lot. But it doesn't faze John Clarke, general manager of i-Trap Internet Security Services.

Clarke and his team of security analysts monitor three intrusion-detection sensors that sit on the backbone of a regional ISP in Cleveland and weed out the serious attacks from the Internet background noise that reaches out and touches the network daily.

To Clarke, it's all a matter of perspective.

With a minimum of 3.3 billion packets flowing across this network backbone in any given two-week period, having only 0.052% of those packets tagged as possible security events is not all that worrisome. However, that number of alerts has tripled in the past six months. And that is scary.

If you drill down, of those 1.7 million alerts, 120,000 are likely false positives, a conservative estimate based on i-Trap's experience.

Another 765,000 are alerts that are triggered by network scanning operations, rather than actual attacks.

That brings the number of potentially serious attacks down to 800,000.

Bringing it down one more notch, an average corpo-

rate customer with a midsize network served by this ISP likely would see 32,000 security alerts in any recent two-week period.

Thirty-two thousand is certainly better than 1.7 million, but the frightening fact is that it takes only one dangerous attack to wreak havoc on your network. The point is, you still have to watch these alerted events carefully over a period of time to ascertain what's noise and what's noxious.

Based on the long-term view of the monitored network, we asked Clarke and his team to weed through our data set and pinpoint the top 10 red flags. Here they are in order of volume.

1: Snort alert: Proxy rules

Number of alerts: 592,171

Possible malicious intent: Use proxy as spam relay

Almost all these are inbound scans. If an attacker finds an open proxy server, he can use this as a jumping point to disguise his identity and launch attacks against other hosts. A pattern change here will alert us to a proxy that was found and is being used.

2: Snort alert: MS-SQL Worm propagation attempt OUTBOUND

Number of alerts: 373,107

Possible malicious intent: Worm propagation

This alerts us that one of our customers has caught the MS-SQL Slammer Worm, and it is attempting to spread itself. In this case, one source address inside the network was responsible for hitting 99.9% of the destination IP addresses, which shows that the worm was randomly

See Hackers, page 52

When are they coming after you?

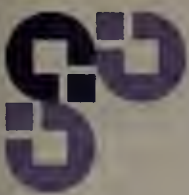
Hackers don't seem to take weekends off. The intrusion-prevention system at our test site (Tel Aviv University) was hit with similar numbers of both reconnaissance (scans) and attacks (bites) every day of the week. The scan spike on July 22 was because of hackers looking for vulnerable User Datagram Protocol (UDP) services.

The three major spikes in hacker activity recorded on the regional ISP's backbone in Cleveland were a SQL slammer worm on July 16, and scans on July 15 and 22 looking for spam relays.

Period	Scan events	Bite events	Total events	Period	i-Trap alerts
Thursday, July 10	5,558	4,994	10,552	Thursday, July 10	80,953
Friday, July 11	5,312	4,688	10,000	Friday, July 11	65,302
Saturday, July 12	4,862	4,501	9,363	Saturday, July 12	89,010
Sunday, July 13	5,992	5,658	11,650	Sunday, July 13	65,689
Monday, July 14	8,043	7,586	15,629	Monday, July 14	100,189
Tuesday, July 15	7,610	7,353	14,963	Tuesday, July 15	190,535
Wednesday, July 16	7,011	7,846	14,857	Wednesday, July 16	199,012
Thursday, July 17	7,655	8,244	15,899	Thursday, July 17	67,774
Friday, July 18	6,582	6,914	13,496	Friday, July 18	149,453
Saturday, July 19	6,796	6,009	12,805	Saturday, July 19	115,716
Sunday, July 20	8,058	6,929	14,987	Sunday, July 20	42,400
Monday, July 21	8,048	7,846	15,894	Monday, July 21	89,824
Tuesday, July 22	15,145	3,712	18,857	Tuesday, July 22	301,964
Wednesday, July 23	N/A	N/A	N/A	Wednesday, July 23	112,763

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Hackers
continued from page 50

probing addresses, but only sent one attempt to each target. The ISP does not

want its customers to contribute to the worm propagation problem, so it would notify the customer who owns the infected machine before complaints are sent from other networks.

3: Snort alert: BAD-TRAFFIC loopback

traffic

Number of alerts: 26,770

Possible malicious intent: Spoofing

Of these alerts, those with a source IP address of 127.0.0.1 signify spoofed traffic. Tracing this packet back to its true source is difficult, if not impossible. On an incorrectly configured machine (or one with out-of-date patches), this spoofing method could trick the machine into thinking it was talking to itself, giving an attacker the ability to send spam or steal information from the target.

4: Snort alert: Telnet logon incorrect

Number of alerts: 20,874

Possibly malicious intent: Gain control of device

When we dug into this series of alerts, we found that most of these packets were sent from only two source addresses that actually were sitting on the ISP's network. With this particular snort signature, the sensor flagged outbound responses from the hosts that were being hit repeatedly with incorrect logon attempts. This is a cause for concern because it's likely the two machines were being hit by a dictionary attack, and if it goes on long enough, a compromise is likely to occur.

5: Snort alert: ICMP ping rules

Number of alerts: 15,047

Possible malicious intent: Denial-of-service (DoS) attack

Ping traffic is normal. Ping is used widely as a troubleshooting and diagnostic tool, but also is used in scanning and DoS attacks. A change in the pattern here would be a cause for alarm. But in this case, the i-Trap team referred to its real-time statistics to track the frequency of these pings. There were no bursts of ping traffic hitting the network in a relatively short time (5 to 60 minutes), so they could conclude there was no attempted DoS attack.

6: Snort alert: Formail rules

Number of alerts: 2,508

Possible malicious intent: Corrupt Web e-mail

Formail is a script used to handle e-mail correspondence through a Web site. If misconfigured, an attacker can use this as a launching point for spam. While the attackers did not find any misconfigured machines during the two weeks we tracked alerts, i-Trap officials said they typically see one incident per month (that's tracked across 1,500 Web sites the ISP hosts) in which the machine is found and subsequently used as a spam relay.

7: Snort alert: NetBIOS IPC\$ share access

Number of alerts: 1,139

Possible malicious intent: Gain full administrator rights

The IPC\$ share is an administrative feature of Windows that, if achieved by a hacker, gives him administrative rights over the machine. Breaching a share requires three things: the share name (which is on every Windows NT, 2000 and new 2003 system, and cannot be

removed or renamed), a user name (the default of which is "Administrator," which often is not changed), and a password. This feature should not be accessed outside of a LAN environment, so to see these share attempts coming from the Internet is a definite sign that someone is trying to break into these machines.

8: Snort alert: RPC portmap rules

Number of alerts: 160

Possible malicious intent: Gain admin rights to a machine

These alerts crop up when hackers are looking for unpatched Linux and Unix machines. RPC vulnerabilities easily will allow an attacker full control of the target if they find an unpatched machine. There were no RPC break-ins on our watch, but it's worthwhile to note that the probes were fairly constant, so system operators need to be pretty vigilant about keeping RPC vulnerabilities patched.

9: Snort alert: SCAN SSH Version map attempt

Number of alerts: 13

Possible malicious intent: Gain administrator rights to a machine

This is probing for a vulnerability in Secure Shell (SSH), a method used to remotely gain administrative rights to Unix or Linux systems. There are known vulnerabilities in the SSH service, and people who use Linux tend to be behind in their patching, as it is a manual process unlike using Windows Update. If a vulnerable system is found, the flaws in SSH will allow an attacker full control of the system. There was no evidence of a successful SSH during our two-week period. These attempts typically come at the network in groups but at a low volume, so they usually can be reviewed manually to see if a compromise occurred.

10: Snort alert: Policy FTP rules

Number of alerts: 11

Possible malicious intent: Store contra-band files

These alerts are triggered when an FTP logon is successful — whether through an anonymous account or otherwise — and the user is digging around in the FTP server. In particular, these rules are usually indicative of somebody setting up a warez distribution site. They indicate the user is attempting to clock the speed of the server, create hidden directories, and access storage on the site to which they shouldn't have access.

Eric Bowser of I-Trap and Network World Global Test Alliance member Joel Snyder of Opus One contributed to this story.

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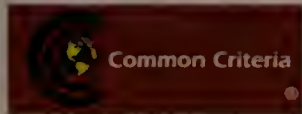
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The ROI of network security

Network security can be a tough sell, but there are ways to convince your CFO that investing in security is a cost-effective move.

■ BY KATHRYN KOROSTOFF

Network security is one of the hardest technology categories for which to create an ROI analysis. The fundamental problem is determining the value of preventing security breaches, which constitutes the “savings” in an ROI calculation of savings divided by cost.

Network security savings equals cost of security breach

Think of this value as landing somewhere along a security consequences continuum. At one extreme of the continuum (“no consequences”) are those organizations that would get no value from network security.

In this unlikely extreme, the organization would experience no costs in the event of a Web site being hacked, company information being stolen, or network resources being unavailable.

At the other extreme (“dire consequences”) is a company in which:

- The Web site is so critical that every 5 minutes of downtime can be directly correlated to revenue loss.
- Lost information has clear costs, such as legal costs from liability in the event of confidential client information being stolen.
- Network resource downtime causes employee work stoppage, such that the employees literally can not work, and the cost of the breach is the employees’ salaries.

A strong case also can be made for the unquantifiable costs of network security breaches. But because these items are not directly measurable, it is best simply to pose them to your CFO or other non-IT management for their input:

- If our clients find out we had a breach, would they become less loyal to us? Can this be quantified?
- If it took us more than eight hours to respond to a breach (because it happened at midnight and we didn’t know about it until 8 a.m. the next day), would there be any ramifications (with our clients, suppliers or employees)? Can this be quantified?

Part of the challenge is in figuring out where on the security consequences continuum your organization lies. Two ways of determining this are as follows:

1. Has your organization experienced breaches in the past, and if so, what was the impact?

- How many hours did the IT staff have to work to bring the Web site up (if it was hacked)?
- How many hours of employee productivity were lost?
- Were there financial ramifications (legal, competitive) because of lost information?

At the time of the breach, the mad rush to correct the problem often overshadows the need to document its impact. Still, in hindsight you might be able to recreate the scene of the crime.

2. Have any of your competitors experienced breaches?
- Can you quantify their losses (for example, did their downtime result in additional business for your company)?

Sometimes I talk to network executives who have not experienced a breach but know of events experienced by their competitors and have told me (if a little gleefully) about the impact: “Their Web site was down for a whole day and our online sales went up 20%.” That can be translated into the competitor losing that 20% of revenue.

Network security costs

The costs of network security investment are quite broad. There are several categories of products and services in which a company might choose to invest — from firewalls, intrusion-detection systems, authentication systems and anti-virus tools, to various software tools that monitor servers and network devices, and raise alerts triggered by suspicious activities.

There are even fingerprint readers available for less than \$200 per device. And for those organizations at the “dire consequences” end of the continuum, a 24-7 monitoring service also might be a justifiable expense.

Calculating the ROI

All ROI analysis is based on a given solution’s costs and its savings or revenue generation. The graphic on the right lists potential sources of both for network security.

As is commonly observed, investing in network security products is like buying insurance. You pay upfront to protect yourself against a possible calamity. For organizations that don’t have a quantifiable risk, perhaps very little investment is warranted. But for those at the “dire consequences” end of the continuum, network security investment is as vital as earthquake coverage for homeowners residing near the San Andreas Fault.

Korostoff is president of Sage Research in Natick, Mass. She can be reached at kkorostoff@sageresearch.com.

Cost vs. cost

Balancing the cost of network security against the cost of not implementing network security.

With network security

Common investments include:

- Firewalls.
- Intrusion-detection systems.
- Web filter/content filtering system.
- Anti-virus software.
- Monitoring tools.
- Authentication solutions (such as RSA’s SecureID).
- Staff security specialists (or consultants to provide the necessary ongoing maintenance of security products).
- 24-7 monitoring service.

Without network security

Common questions:

- Cost to organization if Web site is hacked?
- Cost of information loss? (potential for competitors to gain access to proprietary information, potential loss of credibility with clients, potential litigation costs of information that is considered confidential)
- Network resource downtime (number of employees potentially impacted by their salary costs to the company).



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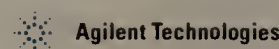
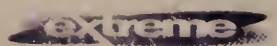
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- ▶ Network and security architects
- ▶ Network and security managers
- ▶ Systems managers/administrators
- ▶ LAN/WAN administrators

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- ▶ most effective wireless security solutions
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Strategies

CAREER DEVELOPMENT
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Taking IT offshore

Where are the hot spots for offshore outsourcing?

■ BY LINDA LEUNG

Offshore outsourcing: Like it or loathe it, the ability to get the same work done for less money by overseas workers is likely to be a big draw for U.S. corporations struggling to remain competitive.

The recent news that IBM executives met to discuss shipping IT jobs overseas has generated controversy. But IBM is just one of a score of organizations that have discussed offshore outsourcing options. According to Gartner, by 2004 more than 80% of all U.S. companies will have considered shifting U.S. IT jobs overseas, while 40% of all U.S. organizations will have completed some type of pilot or will source IT services from non-U.S.-based service providers.

In addition to the cost benefits, shunting tasks such as programming and application migration to foreign lands frees up in-house staff to work on more strategic developments.

As offshore service providers get more experienced at dealing with U.S. corporations, they are beginning to move up the value chain to offer business process outsourcing, call center outsourcing and network infrastructure management.

Countries such as Canada, India and the Philippines are good locations for service providers offering network management outsourcing, says Debashish Sinha, principal analyst of IT services and sourcing at Gartner. Those regions offer large pools of highly trained workers, have a modern telecom infrastructure and are likely to be able to make the required capital investment in building network management centers.

"The Philippines is an archipelago that has high-speed underseas telecom cables between the islands right up to the management centers," Sinha notes, in comparison to continental regions that might rely on older, domestic pipes.

On the other hand, countries that don't have an expansive pool of workers or can't afford big capital investments instead often concentrate in niche areas. Russia, for instance, offers scientists and mathematicians who can help solve large-scale, complex technical problems. There, an average developer salary is about \$7,500 per year, according to Gartner.

This guide will show you which regions offer offshore outsourcing and the types of services local providers offer. ■

Canada:

More nearshore than offshore, Canada's cultural compatibility and time zones are obvious

benefits to U.S. organizations considering a safer first step to outsourcing to foreign lands. The country's telecom infrastructure lets our northern neighbor offer network management services.

Specialty: Applications development, business process outsourcing, call center.

Quality indicators: High: Government support, labor pool, infrastructure, educational system, cultural compatibility, legal system.

Medium: Cost, process quality.

Low: Globalization skills.

China:

China could be one of the top three offshore countries as the region matures between 2007 and

2010. The cost of its workforce is 20% to 40% less than India's, and doing business with China is attractive given its entry into the World Trade Organization.

IT workers have strong Linux skills, and the region's role as host of the 2008 Olympics should enable it to improve the national infrastructure. However, its weaknesses include problems with software piracy, poor levels of English language skills and lack of technical innovation.

Specialty: Embedded software, hardware services, localization, application development.

Quality indicators: High: Government support, cost, globalization skills.

Medium: Infrastructure, educational system. **Low:** Labor pool, process quality, cultural compatibility, legal system.

India:

With 415,000 IT pros and 70,000 newbies entering the workforce each year, India is the

dominant offshore player.

Beyond legacy maintenance and staff augmentation, providers now offer infrastructure outsourcing, e-business development and applications integration.

Challenges include cultural differences with the U.S., perception that providers take a subservient approach to their work (customers want providers to challenge their thinking), and increased competition from other countries.

Specialty: Applications/product development, business process outsourcing, call centers.

Quality indicators: High: Government support, labor pool, educational system, cost, process quality.

Medium: Globalization skills, infrastructure. **Low:** Cultural compatibility with U.S., legal system.

Ireland:

Gartner lists Ireland as an example of a region without a vast labor pool that

is focusing on high-value offerings. It's regarded as one of the leading countries for packaged applications and product development, as well as internationalization experience and software localization.

However, labor cost is high compared to other offshore countries. According to the Offshore!Touting.com Web site, a programmer in Ireland costs roughly \$25,000 to \$40,000 per year, compared to \$6,000 to \$20,000 per year in India.

Specialty: Packaged applications, product development, high-end systems.

Quality indicators: High: Government support, infrastructure, educational system, process quality, cultural compatibility, legal system.

Medium: Labor pool. **Low:** Cost, globalization skills.

Israel:

Like Ireland, Israel has a smaller labor pool and so has had to specialize. The country's higher-education system

has helped to produce savvy IT pros.

Specialty: High-end systems, learning systems.

Quality indicators: High: Infrastructure, educational system, cultural compatibility. **Medium:** Government support, labor pool, cost, process quality, legal system. **Low:** Globalization skills.

Philippines:

Business and IT services have become a target for the Philippine government.

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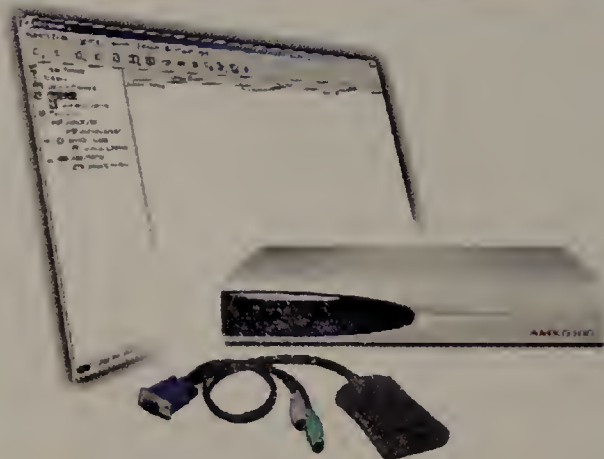
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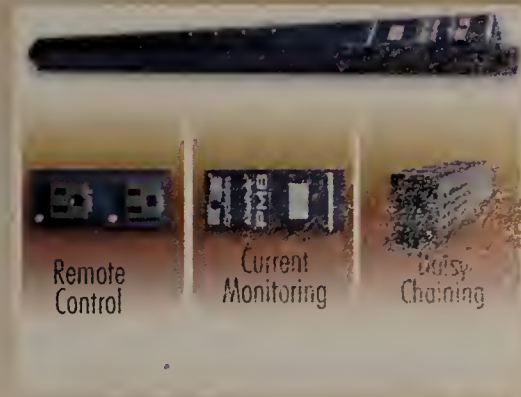
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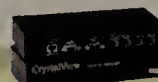
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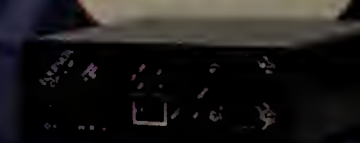
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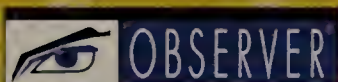
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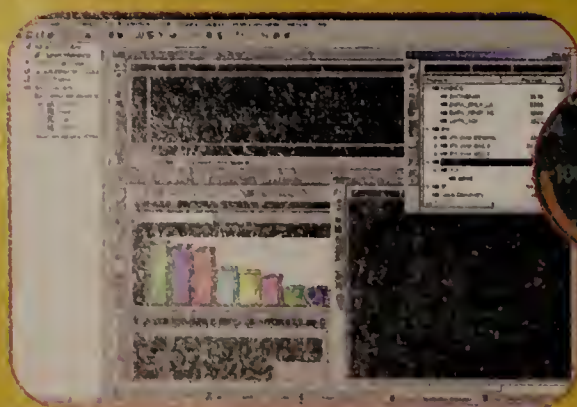


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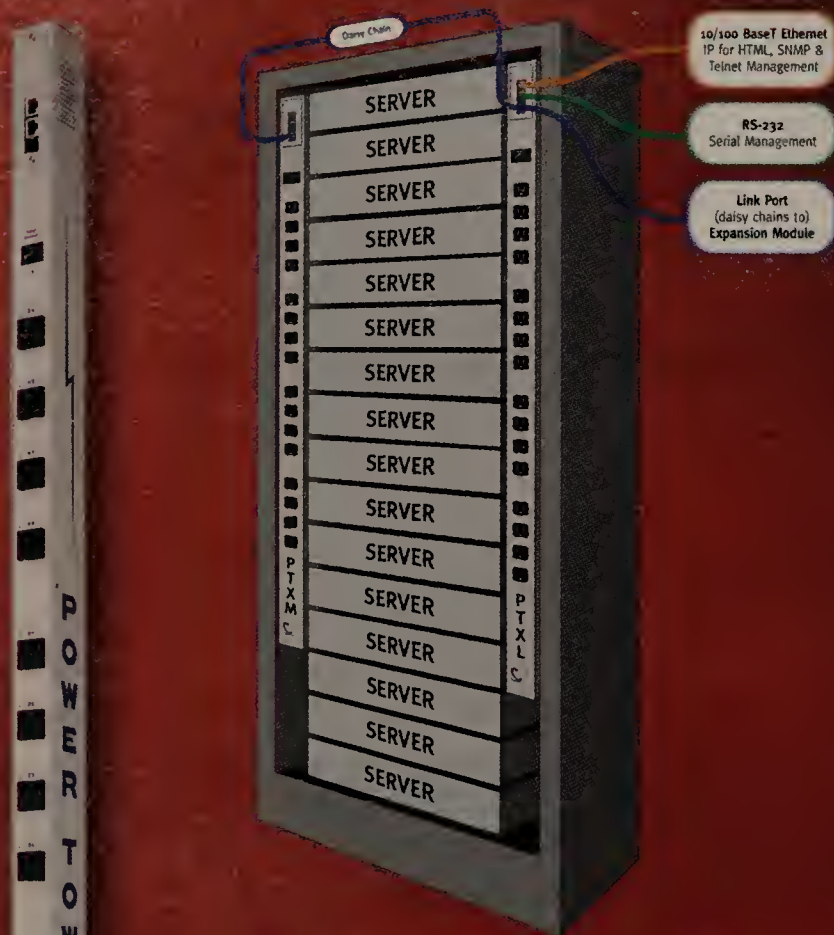
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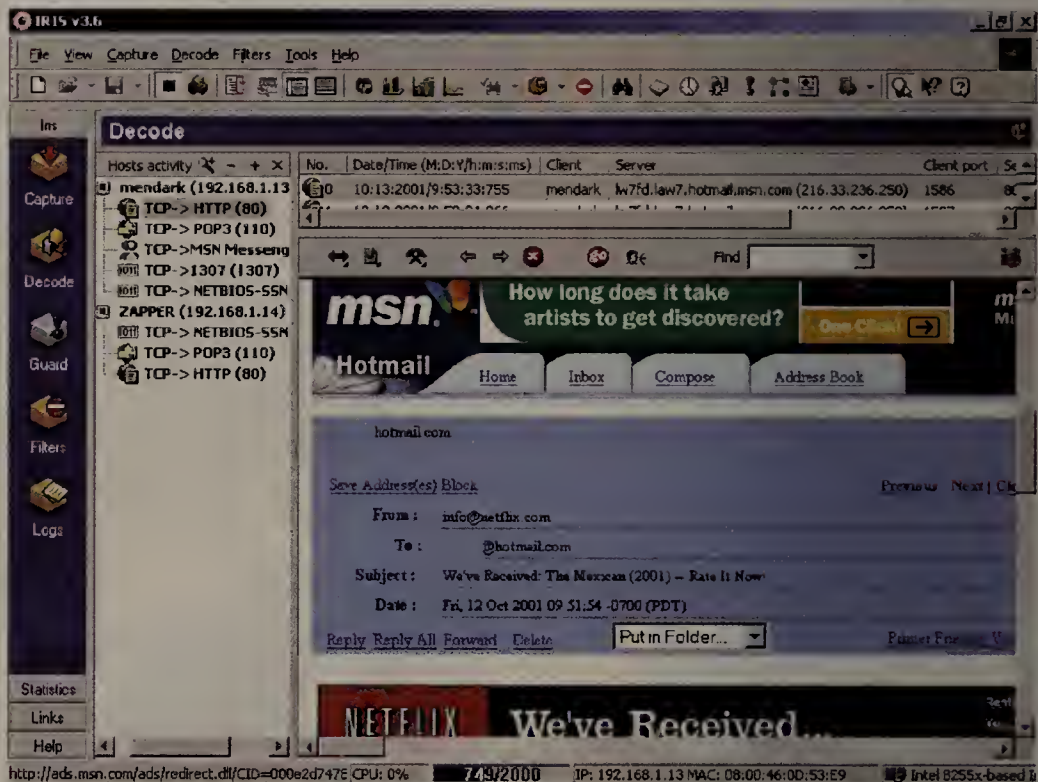
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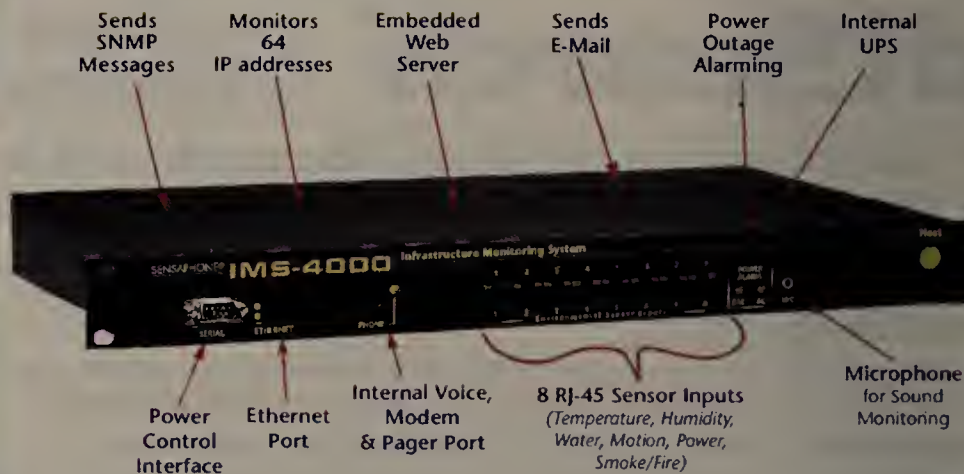
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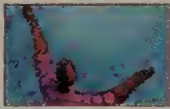
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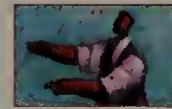


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Graduating college seniors rank consulting as the number two career of choice, behind entertainment/media, according to the Universum Communications annual survey. That's good news for consulting firms, large and small, which are hiring new graduates and seasoned IT professionals.

Despite major downsizing that applied to every job category from 2000 to 2002, there are several strong consulting opportunities in 2003. Utilities, transportation, manufacturing and defense/security are all categories where consulting expertise will be sought out in the coming months. Rapid change is needed to meet new challenges, as well as longer term investments in information technology.

While consulting was hard-hit by the economy and by corporate leadership issues, firms were restructuring and refocusing priorities. Accenture became an independent group of consultants as of January 2001, while PricewaterhouseCoopers sold its business consulting unit to IBM. Deloitte Consulting remains part of Deloitte Touche but operates independently. JDEdwards is merging with PeopleSoft.

The larger consulting firms are hiring in a range of areas, from the information technology that enables them to serve clients to the actual customer-facing consultants. For instance, at Accenture, the Technology Solutions group is home to application, software and architecture

development expertise, while business consultants provide the link to clients between in-depth business knowledge and how technology can be applied to meet that specific business sector's challenges.

According to Laurie Ryan, spokeswoman for Accenture which currently employs 75,000 worldwide, the company hires both from college campuses and from among more seasoned professionals. Accenture lists job openings in areas ranging from development and architecture to Tier 3 support and services delivery.

While specific 2003 hiring numbers for the major consulting groups aren't being provided, the larger firms are hiring a strong mix of experienced IT professionals and new IT graduates. Small firms are also hiring, sometimes combining consulting with offshore and domestic outsourcing.



Cognizant Technology Solutions, based in New York, is among those serving as a conduit to offshore resources for the more routine development and support functions. Larry Gordon, Cognizant's vice president for marketing, says the firm hires about 30% of its IT professionals in the United States. Among them is a cadre of business consultants who have experience with profit/loss operations and who have in-depth business acumen in one of the company's vertical markets. He lists these, specifically, as banking, retail/consumer products, insurance and healthcare insurance. In addition to client partners and practice leaders, the company is looking for experts in transaction and payment solutions.

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Application Developers needed at unanticipated client sites to perform db performance analysis, schema re-dsgn & normalization, tuning issues by leveraging complex JDBC calls to stored procedures, & dvlpt scripts in LoadRunner, WinRunner & XRunner. Dsgn & implmt web dispatcher based on Struts Web Application Framework & dsgn s/ware & h/ware re-architecture. Send resume to: Global Consultants, Attn: Hireme, 25 Airport Rd, Morristown, NJ 07960.

Sr. Systems Analyst - Lawrenceville, NJ. Lead turnkey project to design, dvlpt & maintain XML/Internet based systems for environmental regulatory agencies. Applying environmental business logic to lead s/ware life cycle dvlpt incl user reqmt analysis, systems analysis, design, coding, testing & implmtg applies under Microsoft .NET, using XML, XML Schema, Web Services, & end-to-end messaging level security technology. Research innovative s/ware apps, & conduct feasibility study. Must possess: MS in CompSci, Environmental Engg or Chemical Engg with min 2 yr of exp in s/ware dvlpt. Strong skills in XML, XML Schema, C#, Microsoft.Net, ASP.NET, Web Services Technology, & Biz Talk Server. Send resume w/salary reqmt to HR Mgr, Enfotech, 11 Princess Rd, Unit A, Lawrenceville, NJ 08648. Refer to job#SYS018.

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Z3 Technologies, Inc. a fast growing software firm is looking for a Computer consultant: Should have bachelor's degree in computer science/related field with 2 years experience in Requirement Analysis, Design and development. Resolving the technical issues. Programming in Cognos: Impromptu, PowerPlay, IWR, MSSQL, PLSQL, DB2, Win2k, WinNT, and skilled in Oracle; We accept foreign education equivalent of the degree, or the degree equivalent in education and experience. Send resume and covering letter to: Z3 Technologies, Inc. 1803 Shepherd Ct 335 Waukesha, WI-53186; resumes@z3tech.com



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Software Engineers and Programmer Analysts for Software company in Camp Hill, PA. All positions require Bachelor's degree in Comp Science/Computer Engineering or related field and 1-3 years related experience. Send resume to Rashi Information Services, Inc, 214 Senate Avenue, Camp Hill, PA 17011. Attn: Ravi Jaganmohan.

Trading Sys Dvlp wanted by Investmnt & Trade Support Services Co in Manh. Build derivative models for trading; write financial sys reports for products including fixed income, equity, futures, options, derivatives &/or foreign exchange; dvp trading appls; design & dvp risk mngmnt reports. Bach in Comp Sci & 2yrs exp in job offered req. Respond to: CT/HR Dpt, PO Bx 4241, GCS, NY 10163.

System/Programmer Analysts wanted by Magnum Software Services (small but stable). Candidates will use Java, SQL, Oracle for business analysis and application design, must have BS in computer science/engineering. Please contact kiran@mngmsoft.com for details. EOE.

Saisha Tech & Circuits International, a certified minority-owned business enterprise, is looking for Sales Engineer with direct account responsibility, selling custom manufactured electronic components. Must have BS with exp. in tariff calculations. Please apply at team@stacilc.com

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Silverman Law Firm seeks applicants for the position of System Administrator in Englewood, CO to engage in moderately complex tasks involving software configuration management and network systems administration for law firm. Requires experience in design of software configuration management and implementation procedures; design, implementation and support of computer network and communications technologies and maintenance and support of computer hardware assets. Requirements also include a working knowledge of configuration, management and implementation procedures for FMI-Tucans, CLS and JST commercial legal collection software packages. Respond by resume to David Silverman, Silverman Law Firm, 13111 E. Briarwood Ave., #340, Englewood, CO 80112.

Software Engineer: Sioux Falls, SD. Research, design & Dev. Comp. soft syst, in conjunction with hardware product dev. Consult with hardware eng & other eng staff to evaluate interface between hardware & software, & operational & performance req's of overall system. Provide technical guidance on client projects. Will use Win NT/95, Unix, AS/400, dev 2000, ABAP/4, Oracle, RDBMS, DB/400, OS/400, SAP, Visual Basic, MAPICS (MRP) Workstream, Auto CAD, MS Access, DOS. Req'd Bach in eng/math/CS or MIS & 5yrs exp or masters + 2 yrs exp on the job or as a Programmer Analyst or IT Consultant. \$70,000/yr; 9AM-5PM, MON-FRI, 40hrs wk; send 2 resumes to: South Dakota One-Stop Career Center, 811 E. 10th Street, Sioux Falls, SD 57103-16500 Tel: (605) 367-5300; Fax: (605) 367-5308.

PROGRAMMER/ANALYST to design, analyze, code, debug, implement and maintain e-commerce applications software and relational database for automotive industry using object oriented techniques, C/C++, dBase, Lotus 1-2-3 and HTML; design, develop and support internet-based e-commerce applications using Java, Visual Basic and Oracle. Require: B.S. in Computer Science/Mathematics. Competitive salary and benefits, 40-hour week, M-F, 8:30 am to 5 pm. Apply with resume to: President, SKCO Investments Corporation, 7354 Airport Blvd., Mobile, AL 36608.

Technical Consultants needed at unanticipated client sites to be involved in business processing transactions based on XML docs; analyze, dsgn, dvp, implmt modules, XML schemas & messages, dvp JSP & XML parser to dvp web enabled front end for insurance s/ware prdcts; & be involved in QA & customer support. Send resume to: Atiam Tech., Attn: B. Oakes, 350 Baldwin Towers, Eddystone, PA 19022.

Prog/Analysts to analyze, design appls using C++, Java, HTML, VB, JavaScript, Weblogic, SQL, Oracle, MS Access under Windows, UNIX OS; perform and document data modeling; study, evaluate new technologies/methodologies; gather, document reqs from user community; test/troubleshoot project appl code. Require: BS or foreign equiv in CS/Engg. (any branch) with 2 yrs exp in IT. High Salary. Travel involved. F/T. Apply to: HR, Unilinx, Inc, 4625 Alexander Dr., Ste 110, Alpharetta, GA 30022.

SOFTWARE ENGINEERS (12 positions): require Bachelor's or equivalent in Engineering/Computer Science/Mathematics/Science or closely related field with two years experience providing skills in described duties, at \$79,000 per year. Provide on-site consulting in design, analysis and development of software applications for legacy systems in IBM mainframe environment; development and administration in Oracle, DB2, SQL Server and Sybase; e-commerce and web applications development in Microsoft, Java and related technologies; network management systems development with Netscape Server and related tools; SAP R/3 applications on Windows with DOS and ABAP/4 and related modules. 40% travel to client sites in the United States. Mail resumes to: Y&L Consulting, Inc., 605 17th Avenue, East Moline, IL 61244.

Programmer: Provider Billing Services, Inc. seeks a programmer to work in Denver, CO to, under close supervision, engage in moderately complex tasks involving the development of medical billing computer software applications that run on JBOSS application server with MySQL relational database. Convert project specifications and statements of problems and procedures to detailed Unified Modeling Language (UML) for coding. Code, test and debug the applications. Utilize Java Swing, J2EE, ANSI standard X12 Electronic Data Interchange, EJB/CMP (container managed persistence), Aspect Oriented Programming (AOP), NetBeans IDE and CVS version control in development process. Requires a Bachelor's or foreign equivalent in computer science; working knowledge of technologies listed in the job description. Respond by resume to James Peterson, Provider Billing Services, 500 E. 84th Ave. Ste. C-6, Denver, CO 80229.

Z3 Technologies, Inc. a fast Growing software firm is looking for a Computer consultant: Should have bachelor's degree in computer science/related field with 2 years experience in Requirement Analysis, Design and development. Resolving the technical issues. Programming in Sun Solaris, AIX, HP-UX, HACMP/ES, IBM RS/6000, IBM SP2, Lotus Domino, Win2k, WinNT, and experienced on various IBM platforms. We accept foreign education equivalent of the degree, or the degree equivalent in education and experience. Send resume and covering letter to: Z3 Technologies, Inc 1803 Shepherd Ct 335 Waukesha, WI-53186; resumes@z3tech.com

Prog/Analysts to analyze, design, develop and maintain custom business appls in client server environment using C, Java, EJB, JSP/Servlets, XML, VisualAge, Weblogic, COBOL, CICS, Oracle, etc; design/develop enterprise appls including B2Band B2Cfor multi OSs; design, develop Java applets & run batch process to generate reports; perform code development, quality control testing and performance tuning in a project lifecycle. Require Bachelor's Degree or foreign equiv in CS/Engineering (any branch) or related field with 2 yrs exp in the software industry. High salary. f/t. some travel involved. Resumes: HR, Opal Soft, Inc, 3150 Almaden Expwy Ste 205, San Jose, CA 95118.

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SOFTWARE DVLPR/CONSULTANT: Dsgn & dvp client/server & web-based comp. appls using C#, Visual Basic, COM+/DCOM, MTS, HTML/DHTML, Oracle, XML/XSL, & JavaScript on Windows platform. Convert project specs & statements of problems & procedures to detailed logical flow charts for coding into comp. language. Dsgn & dvp Digital Dashboards using sharepoint portal server. Dvp & write comp. progs. to store, locate, & retrieve specific docs, data & info. Work w/Enterprise appln integration tools. Create content mgmt tools & mgmt systems. Program web sites. BS in Elec. Engrng or Comp. Sci. reqd + 3 yrs in position offered or as a Prog. Analyst, Sys. Analyst or Sftwr Engrnr. Must have: (1) Microsoft certification in FrontPage 98 & Visual Inter. Dev. 6.0; & (2) exp. w/SQL Profiler, Dvpr 2000, Web services, TOAD, Sharepoint portal, biztalk server & Dreamweaver Mx. High mobility preferred. 40 hrs/wk, OT as reqd, 8 am - 5 pm, \$64,240/yr. Qualified applicants please submit resume to Site Manager, Beaver County Career Link, 2103 Ninth Avenue, Beaver Falls, PA 15010-3957. Please refer to Job Order No WEB 351036.

Systems Analyst to design and develop computer software products (Total Report Management Solutions) using C, Visual C++, Java, Servlets, HTML, XML and Javascript on Windows based, Solaris, Linux & OS 390 platforms. Analyze software & user requirements; alternative solutions; design/ implement software systems; enhance TRMS products; coding standards, design documents, test procedures & QA test guidelines; develop integrated HELP and product documentation. Test TRMS products using Jprofiler, Jprobe, Bcunds Checker, Purify on Tomcat, Apache, Iplanet and IBM Websphere web servers on Windows and UNIX platforms. Implement TRMS products in ASP, COM, NET C and C++ on Windows. Design API based TRMS for Java, ASP and COM objects. BS in Science or Engineering + 5 yrs. exp in Job Duties. Apply Confidential Software Inc., 4195 Fellowship Road, Tucker, GA 30084-4613 with proof of work authorization

SAP Analyst - Analyze user requirements, procedures and problems to customize SAP's client/server systems for customers. Analyze current operational procedures, identify problems, and write detailed descriptions of user needs, program functions, and steps req'd to develop or modify SAP computer systems. Must have at least two years experience as SAP Consultant or Systems Analyst. Apply to: BrightStar, 6601 Owens Dr., Suite 115, Pleasanton, CA 94588, ATTN: HR, or e-mail to: jobs@brightstar.com.

PROGRAMMER ANALYSTS for Worth, IL office. Design & Develop software applications using C++, Oracle, Sybase, XML, UML, Coolgen, Interwoven, ClearCase, ClearQuest, ITS, PVCS, UNIX. Bachelors req'd in Computers, Engineering, math or any related field of study +2 yrs of related exp. 40 hrs/wk. Must have legal authority to work permanently in the U.S. Send resume to HR Manager, Core Infosys Technologies, Inc., 7179 West 111th St, Worth, IL 60482

Full time position to work as Programmer Analyst, Experience in ISQL, SQL, PL/SQL, ABAP/4, Visual Basic, SQL Server 2000/7.0, Oracle 7.x/8.x, Erwin, Tabexp, TOAD, DBArtisan, requires Bachelor's degree in Computer information systems or Engineering or equivalent and 2 years of experience in the job offered. Applicants send resume to Vital Sciences, Inc. 13878 Golden Saddle Court, Carmel, IN 46032.

Genesys Conferencing seeks applicants for the position of Database Administrator in Highlands Ranch, CO to design, install, maintain and administer Informix, Sybase and SQL Server relational database management systems. Requirements for this position include bachelor's in computer science or related field and DBA experience as well as working knowledge of managing multiple production Informix, SQL/Server and Sybase servers and SQL Backtrack. Respond by resume to Cheryl Dorman, Genesys Conferencing, 9139 S. Ridgeline Blvd., Highlands Ranch, CO 80129.

Software Engineers and Programmer Analysts for S/W company in Chicago, IL. All positions require Bachelor's degree in Comp Science/ Computer Engineering or related field and 1-3 years related experience. Send resume to SystemGuru Inc, 500 North Michigan Avenue, Suite 300, Chicago, IL 60611. Attn: Sowjanya Manacha.

Programmers & Software Engineers to analyze, design, develop and test apps. in (a) J2EE technologies and related tools, EJB, Websphere, XML, XSL, RDBMS, Unix, Clearcase; (b) Mainframes, COBOL, CICS, JCL, DB2, Java, JDBC, JSP, Servlets; (c) VB, ASP, .NET Framework, COM+, JavaScript/DHTML, SQL. Server and related Microsoft technologies; (d) EAI, Webmethods Enterprise and Integration, ColdFusion, SeeBeyond, JMS, JMX, Oracle. US Workers only. Consulting positions requiring travel. Prevailing wage/benefits. Send resume to H.R. 4208 Van Buren Dr. #139, West Des Moines IA 50266. EOE

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PROGRAMMER ANALYSTS for Springfield, IL office. Design & Develop software applications using C++, Oracle, Sybase, XML, UML, Coolgen, Interwoven, ClearCase, ClearQuest, ITS, PVCS, UNIX. Bachelors req'd in Computers, Engineering, Math or related field of study +2 yrs of related exp. 40 hrs/wk. Must have legal authority to work permanently in the U.S. Contact HR Manager, Global Infotech Solutions, Inc, 826 West Laurel, Suite 1B, Springfield, IL-62704

Programmers to analyze/develop software apps using Oracle Apps, Oracle, PL/SQL, Dev 2000, etc under Windows/UNIX OS; assist in customizing and migrating Oracle App; customize Forms/Reports using Oracle Application standards; document development process. Require: BS or foreign equiv. in CS/Engg. (any branch) & 6 months of exp. In lieu of BS, 3yrs of academic studies towards a Bachelor's degree plus 1 yr of exp in IT will be accepted. Travel involved. F/T position. Competitive salary. Resume to: HR, Quest America, Inc., 211 East Ontario Street, Suite 1800, Chicago, IL 60611

SBI is looking for the following positions for its offices in Houston, TX, San Francisco, CA, Warren, NJ, Salt Lake City, UT and Portland, OR: Programmer Analysts, Technical Architects, Technical Consultants, Business Strategists, Systems Analysts, Software Engineers, Art Director, resumes by email or fax only to HR, SBI 2825 East Cottonwood Parkway, Suite 480, Salt Lake City, UT 84121 careers@sbiandcompany.com; Fax (801) 733-3201.

Seeking qualified applicants for the following positions in Orlando, FL: **Senior Programmer Analyst**. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree or equivalent in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with C++, UNIX and Shell Scripting (Unix Shell Script or Perl Script) also required. (Master's degree in appropriate field will offset 2 years of general experience.) Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V

Western Computer is looking for Hardware Engineer/Senior Developer to program manage, provide programming, design, develop and analyze customer programming projects and to develop hardware interfaces. Please send resume, salary requirement to Western Computer, Attention Diane, 960 Enchanted Way, Simi Valley, CA 93065 or e-mail at diane@westerncomputer.com

SYSTEM ANALYSTS for Chicago, IL office. Design, Analyze & Implement software applications to support EH&S/MM/HR/QM/PP modules in SAP R/3 environment using ABAP/4, BAPI, ALE, LSMW, BDC, DCOM, RFC, Oracle, IDOCS, Data Interface, User Exits, C++, Perl and Shell scripting. Bachelors required in Computers, Engineering or related field of study + 2 yrs of related experience. 40 hrs/wk. Must have proof of legal authority to work permanently in the U.S. Please send resume and cover letter to HR Manager, Masterminds Global Solutions, LLC, 6000 Fairview Road, #1200, Charlotte, NC 28210

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companies
e-normous
opportunities
ITCAREERS.COM

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Editorial Index

3Com	10	Foundry Networks	1	Nortel	39
A		FrontBridge Technologies	37	O	
Adaptec	25	G		Oracle	8
Alltel	1	Gateway	25	P	
AOL Time Warner	8	H		Palm	8
Arbor Networks	37	HP	8, 30	R	
Aspect Communications	10	I		Rackspace	37
AT&T Wireless	1	IBM	12, 25, 30	Redback Networks	39
Avaya	28	Intervoice	10	Riverhead Networks	37
Avici Systems	39	IOGear	44	S	
B		i-Trap Internet Security Services	1	ScanSoft	10
BMC Software	20	J		SCO Group	12
C		Juniper	39	Snap Appliance	44
Cingular	1	K		Sprint PCS	1
Cisco	25, 33, 39	Kinesis	44	Sun	30
Computer Associates	20	M		Sygate	33
E		MeetingHouse Communications	16	Symantec	23
Electronic Data Systems	18	Micromuse	16	T	
eMeta	72	Microsoft	8, 14, 16, 18, 28, 76	Toshiba	25
Engim	8	N		U	
Enterasys Networks	16	NavSite	37	Unique Solutions	25
Eolas Technologies	28	Network Associates	33	V	
Expand Networks	18	Network Harmoni	16	Verizon	1
F		Nextel	1		
Flamenco Networks	33				

Advertiser Index

Advertiser	Page #	URL	Network World Fusion - www.nwfusion.com
3COM Corp	31	http://www.nwfusion.com/go/WLAN1	netVmg
Adtran	77	www.adtran.com/info/whypaymore	Norwich University
American Power Conversion	20, 21	http://promo.apc.com	NSI Software
Avocent Corp	58	www.avocent.com/advantage	OmniCluster Technologies
BellSouth	42	www.bellsouth.com/business/metroethernet	OpenNetworks
BuyUptime.com	63	www.buyuptime.com	Palm, Inc.
Cisco Systems	40-41	cisco.com/securitynow	Permeo
Covad Communications	11	www.covad.com/t1challenge	Proactive Net
Cyclades Corp	59	www.cyclades.com/nw	Qualcomm
Dell Computer Corp	38, 39	www.dell.com/migration16	Quantum NSU
dtSearch Corp	63	www.dtsearch.com	Quintum Technologies
eEye Digital Security	6	www.eEye.com/freemug	Redline Networks
eEye Digital Security	64	www.eEye.com/freelrus	RouteScience
EMC Corp	24	www.emc.com/growthcompanies	RSA Security
Enterasys Networks	22	enterasys.com/nw/n-series	SeeBeyond
Enterprise Management Associates	45	www.enterprisemanagement.com	Serano Networks
Equinox Systems	60	www.equinox.com/wpdownload272.cfm	Siemens
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IBM Corp	74-75	ibm.com/eserve/efficiency	Telogy/Texas Instruments
Internet Security Systems Inc	36	www.iss.net/iss-nw	Trusecure
Microsoft Corp	2-5	microsoft.com/windows/serve2003	Tyco Electronics
Network Instruments LLC	62	www.networkinstruments.com	Valencia Systems
NextiraOne	35	www.NextiraOne.com	Verisign
Nokia Internet Communications	19	www.nokia.com/mobileaccess/americas	VIEQ, Inc.
Phonetics Inc	64	www.ims-4000.com	Watchguard Technologies
Qualcomm	17	www.qualcomm.com/enterprise	Wavelink
Quantum Corp	51	www.quantum.com/diskbackup	WebSense
Rose Electronics	60	www.rose.com	Whale Communications
SAP	29	sap.com	Winternals Software
Server Technology	64	www.servertech.com	World Data Products
Sharp Electronics Corp	52-53	sharpusa.com/security	Xythes Software
TECSys Development Inc	13	www.tdit.com/netad	
Tripwire	55	http://network.tripwire.com	
WebSense	9	www.websense.com	
Western Telematic Inc	62	www.wt.com	
Zultys	23	http://www.zultys.com	

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Caitlin Horgan, Sales Assistant
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Marta Hagan, Sales Assistant
Internet: jdibian, mhagan@nww.com
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Shaun Budka, Director, Customer Access Group
Kate Zinn, Sales Manager, Eastern Region
Caitlin Horgan, Sales Assistant
Internet: tdavis, sbudka, kzinn, chorgan@nww.com
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James Kalbach, Director, Online Services
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Debbie Lovell, Online Account Manager
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Foundry

continued from page 1

Industry watchers and customers have anticipated such developments from Foundry, which has been mum, as rivals such as Enterasys, Extreme Networks, HP and Nortel have unveiled access point and WLAN switch products earlier this year.

"We're excited to be getting the Foundry [wireless] products," says Richard Nelson, director of information processing at the University of Southern California's Information Sciences Institute (USC-ISI), a supercomputing research center. Foundry's WLAN access points are slated for a beta test at the USC-ISI, which runs a network of Foundry switches for desktop connections, as well as Gigabit and 10G Ethernet in the core. Cisco Aironet WLAN equipment also is installed. Depending on how the beta test goes, Nelson says he might keep a dual-Cisco/Foundry Wi-Fi network, or opt for an all-Foundry infrastructure.

Wireless access-point management is sometimes difficult, he adds, because there is no easy way to combine management functions of his Foundry wired and Cisco wireless gear. Having

What's ahead for Foundry in Wi-Fi

• A crowded field

Wi-Fi gear has been established in corporations for several years, and it will be hard to force a swap-out in existing networks.

• Out of focus?

While known as a high-performance wire-line switch vendor, Foundry is diverging from its roots. Will it work?

• Late in the game

Key rivals Extreme, HP and Nortel all announced Wi-Fi strategies earlier this year.

• Standardize

It's anticipated that Foundry will take advantage of standards-based 802.11 technologies that have only recently evolved for corporations, such as 802.1x and 802.11g.

• Easy upgrades

Foundry will reportedly add WLAN switch features to its gear through firmware upgrades, instead of requiring new switches, as some competitors do.

• Wired extension

It's expected that Foundry's market sweet spot will be existing switch customers looking to unify Wi-Fi and wired Ethernet.

WLAN and wired LAN gear act seamlessly as one system is something Nelson says he has been hoping for.

"The ability to add wireless management to switches through a software upgrade is also interesting," Nelson says, because his organization won't have to buy new network gear to

manage the access points.

Foundry next month is expected to release WLAN access points that will support IEEE 802.11a (54M bit/sec), 802.11b (11M bit/sec) and 802.11g, which supports speeds up to 54M bit/sec.

It's expected that Foundry's access points will support 802.3af PoE standard, letting the devices

receive AC power and Ethernet connectivity over a single Category 5 or 6 wire. Competitors such as 3Com, Avaya, Cisco and HP offer POE access points and switches. The access points will work with Foundry's PoE switches, which the company released in March, or any other 802.3af-compliant products. For security, 802.1x port authentication will be included in the access points, allowing the devices to force authentication at the connection level through a RADIUS server.

In the fourth quarter, Foundry plans to release software upgrades for its FastIron stackable switches that will let boxes manage and configure Foundry access points attached to the switch. Industry watchers familiar with Foundry's plans say the upgrade basically will turn any Foundry stackable into a WLAN switch, with security, management and roaming management features comparable to those in products from Aruba Networks, AirSpace, Extreme, HP, Nortel and Trapeze.

Sources say Foundry will extend its WLAN switch software to its chassis switches in the first quarter of next year. This addition will allow gear such as BigIron and FastIron core switches to have WLAN control and configuration capabilities.

Foundry would not respond to specific questions on the unannounced products, but said it is developing a Wi-Fi strategy with products to be announced next month.

Foundry's wireless jump follows similar moves this year from competitors Extreme and HP. And in the second quarter, Enterasys announced new ASIC architecture that lets its gear provide some of the security, quality of service and manageability features that WLAN switches offer.

"Wireless is a move Foundry has to make," says Zeus Kerravala, an analyst with The Yankee Group. While not commenting specifically on any of Foundry's anticipated Wi-Fi products, Kerravala says wireless would complement Foundry's product menu, even if the technology is somewhat out of the vendor's focus.

"Foundry has always been known as the high-performance switch company," he says. "Wireless would be a bit of a diversion from that, but it's necessary for them to have." Keeping up with rivals 3Com, Cisco, Enterasys, Extreme, HP and Nortel has a lot to do with Foundry's strategy, he says. ■



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CMA

continued from page 1

closure of another broad-based user group, the International Communications Association (ICA), in the first quarter of last year.

"A widely focused group like the CMA is an anachronism in this business climate," says Bill Moore, outgoing CMA president and telecom manager at The Museum of Modern Art in New York. "The CMA filled a viable role in getting information out to end users, but over the years, narrowly focused groups [including vendor-specific groups] have come in. I don't think there's much of a pressing need for widely focused end-user groups."

The number of corporate members, who paid dues of \$600 per year, dwindled from a peak of 150 five years ago to 20 at the time of closing. Membership, which mainly served user organizations in the Northeast such as Rutgers University, Sloan-Kettering Cancer Center and Travelers, dropped to 75 in 2002 two years after the group cancelled its once-popular annual Corporate Networks conference, and soon after the Sept. 11 attacks in New York.

In his letter published on the CMA Web site, Moore explains that the cancellation of the annual show "was the first in many blows to our operation." The CMA struggled to find writers for its quarterly newsletter, the *CMA Review*, and battled with low

attendance numbers to the nine seminars it held each year.

The closure of the ICA and now the CMA, which prided themselves on the networking and social opportunities afforded to members, has paved the way for smaller groups with a narrower focus. These include the Wall Street Technology Association, whose members are financial institutions, or public policy lobby groups such as the Ad Hoc Telecommunications User Committee, which represents 20 corporate members, including American Express, Sabre and Ford, plus the eCommerce & Telecommunications Users Group (eTUG).

"A lot of organizations like [the CMA and the ICA] were not effective," says Johna Till Johnson, president and chief research officer at Nemertes Research, and a *Network World* columnist. She recalls being "flabbergasted" at the CMA's unwillingness to actively lobby the FCC five years ago when carriers began raising telephone bills to meet local-access charge regulation. "These guys [the CMA] were just sitting there while their constituents were screaming. It was then that I thought they were doomed. They're great for networking and socializing but those days are over," she says.

Moore says the CMA's not-for-profit and tax status prohibited the group from being active lobbyists, although it did meet with guest attorneys to discuss public policy.

The ICA began to get into public policy in

the late 1970s and early 1980s, says Brian Moir, who served as counsel for the user group. But that proved to be its undoing, as it was difficult mixing the traditional networking and social side of the group with public policy, he explains. Moir is now counsel of eTUG, which was formed in 2001 by some former members of the ICA.

The Ad Hoc Telecommunications User Committee was founded in the 1960s, and members meet four times per year for intensive sessions that last a day and a half to discuss telecom regulatory issues. The entry-level contribution for membership is \$25,000 for corporate members, which increases over time.

"There is room for a different model," says Colleen Boothby, a partner at LB3, the law firm that represents Ad Hoc, whose members seek to influence regulatory decisions. "A group can be more substantive and concentrate on making an impact. At Ad Hoc, there are no trade shows, no golf tournaments, no entertainment — just substantive meetings."

The decade-old Network Professional Association (NPA) is another broad-based user group but its members are individual network executives rather than companies. Executive Director Steve Delahunty says the NPA has suffered from shrinking membership numbers, down from more than 10,000 in its heyday of the late 1990s, to

fewer than 2,000 today. Like the CMA, the NPA in 1994 also was forced to cancel its annual conference.

"We're at the core level of our membership," Delahunty says, citing the economy, a reduction in membership benefits (although he says the NPA has added more benefits in recent years), and a reduction in interest in professional associations, as reasons for the decline in membership.

Users also are disillusioned with some associations. Ray Barnard, CIO at Fluor, one of the world's largest publicly owned engineering groups, says he has dropped out of a few organizations. "Most associations continue to focus on too much IT technical stuff and not enough business/transformation with my customer stuff."

"We also have a credibility problem within IT — lack of results from massive ERP expenditures, questions around true Y2K requirements that did not transpire and the dot-com bust," he says. "All of this drives a hesitation to spend money on associations vs. saving that money or spending elsewhere in conjunction with CFO/CEO perspectives and participation."

As the CMA directors look into the legal issues surrounding the closure, Moore says some members are considering setting up a smaller, less formal group that will share experiences and perhaps tackle public policy. ■



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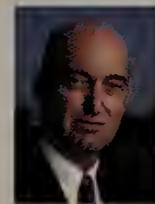
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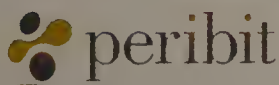
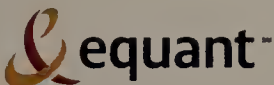
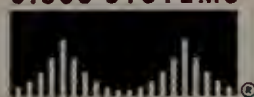
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Wireless

continued from page 1

Management Network Group, says the research firm's findings show that about a quarter of businesses are ready to switch providers once portability becomes available and about half of those companies say they'll switch within 90 days of portability going into effect.

Analysts encourage customers to explore new opportunities but warn them not to necessarily jump right away, before kinks are worked out of the new system.

Down to the wire

The FCC is mandating that carriers support wireless number portability in the top 100 cities in the U.S. in November. The remaining cities are expected to come online in the following six months.

As the FCC deadline nears, wireless carriers have stepped up their efforts to ensure that portability happens on their terms. They repeatedly stress the high cost involved in supporting portability: The Cellular Telecommunications and Industry Association (CTIA) estimates that carriers will spend almost \$1 billion to upgrade their networks to support wireless number portability and \$500 million per year every year thereafter.

Just last month, a band of service providers dubbed the Wireless Carrier Group filed a document with the FCC calling for new rules and regulations that will let all carriers impose service fees and restrictions on customers that want to ditch their carriers but hang on to their numbers. Group members include Alltel, AT&T Wireless, Cingular Wireless, Nextel Communications and Sprint PCS.

Conspicuously absent from the anti-portability pack is Verizon, which filed a document with the FCC refuting the Wireless Carrier Group's claims that fees and restrictions are needed.

Verizon, the largest wireless service provider in the U.S. with 33 million users, once vehemently opposed portability. In fact, Verizon and the CTIA in June had their attempt to sue the FCC over portability shot down.

Since then, Denny Strigl, CEO of Verizon Wireless, has been quoted by the Associated Press saying, "I don't intend to stand in the way of having local number portability become a reality on Nov. 24."

Despite the lack of FCC comment regarding the latest de-

Hindering portability

Alltel, AT&T Wireless, Cingular Wireless, Nextel and Sprint PCS proposed these barriers to wireless number portability in a document filed with the FCC.

- Imposing fees to transfer numbers between carriers.
- Refusing transfers for all users with outstanding balances.
- Number porting only can happen during certain hours of the day.
- Refusing porting requests if user information does not match exactly (for example, address is St. Marks Ave., but new carrier has Saint Marks Ave.).

mands from other wireless carriers, some customers already could be paying surcharges related to wireless number portability (some observers speculate carriers actually will turn a profit on these surcharges).

Cingular, Nextel and Sprint PCS have started or plan to hit customers with monthly surcharges to recover expenses associated with number portability. The fees range from \$1.10 to \$1.55 per line and would be in addition to those the Wireless Carrier Group hopes the FCC will let them charge.

Verizon Wireless says it might charge users 10 to 15 cents to re-

cover some of the costs associated with supporting portability once the feature is available. Strigl told the Associated Press that the company has spent about \$50 million to prepare for local number portability.

Putting on pressure

While carriers are zeroing in on the price of portability, analysts say they really should be focused on improving their services. A recent J.D. Power and Associates survey of 16,800 wireless users found an average of 9% of calls are affected by static or other interference and 8% get dropped or disconnected.

"Large companies will leverage [portability] as a negotiating tool for some groups of subscribers that aren't happy," says Bob Egan, founder and CEO of consulting firm Mobile Competency.

"In the case of Sprint PCS, AT&T Wireless and Cingular, they have some pretty unhappy [users] from a customer service perspective. Those companies will likely be impacted," he says.

Users who are frustrated with their current providers "always think the grass is greener with another carrier, but that may not be the case," says Phil Redman, an analyst at Gartner. Users might find similar problems with other carriers, especially if the issues are related to billing or customer service, he says.

Company offers online rights mgmt. service

■ BY JOHN COX

A software package for managing online digital-content rights and access is being offered as a hosted service.

The eRights Suite, from eMeta, is at the heart of the company's recently launched eRightsWeb. The software lets companies that offer online content, such as news stories, images or software, sell or license this content and manage the full range of customer interactions, such as signing up subscribers and checking credit cards.

A range of big content sites, such as McGraw-Hill and *The New York Times*, use the eRights Suite.

The hosted service is designed to make these same capabilities features available quickly and at a lower cost to a larger group of smaller content providers, says Jonathan Lewin, founder and CTO for eMeta, which was founded five years ago.

As a managed service, eRightsWeb lets companies deploy digital rights management quickly, with a relatively small capital outlay. The software can manage subscriptions, pay-per-view, pay-per-click, promotions, gifts, free trials and special offers.

Content companies simply have to add an eMeta plug-in to their Web site application server. The added code intercepts an incoming request and, if the request is for protected digital content, redirects it to the hosted site for processing by the eMeta server. The service is designed so customers can finish their transactions quickly.

The package costs \$10,000, plus an additional 10% of all revenue generated by use of the eMeta software. ■

Intrust's Rooney says he is considering jumping ship, but not in November. "I feel that by January or February things will have settled down, bugs will have been worked out, and the new competitive rate plans will be established."

Analysts say waiting is probably a good idea for most users.

"Go through the RFP process and wait at least six months" after wireless number portability is available before trying to port hundreds or thousands of user phone numbers to another carrier, Redman says.

And once companies decide to go down the path of porting numbers, they should keep a few things in mind, Redman says. When signing a new contract, they should ask for specific service-level agreements that apply to future number transfers. When they cancel an existing contract, they should clearly inform their carriers that they plan to take their numbers.

Customers also should note that standard contract terms apply. While any customer can break a contract and port all its wireless phone numbers to another carrier, the customer typically will incur early termination charges.

For many companies, portability is not expected to be a wholesale ditch-and-run maneuver. Some are simply looking for more flexibility.

"I will definitely look at more options once I have the ability to carry the number that I have used for the past seven years to any carrier other than AT&T Wireless," says Ron Leighton, a network consultant at a large switch vendor he requested not be named.

"There have been times when AT&T has not had the best plans. However, I have had my number so long that it would be very detrimental to switch," he says. "The lack of number portability has given the providers a hook."

Pieter Schoehuijs, director of worldwide IT infrastructure at Flowserve, a manufacturer of pumps, seals and valves in Irving, Texas, says "[portability] is a big deal for us." He supports 1,200 wireless users and says the majority use AT&T Wireless.

"We have a lot of people who do not want to change to our current provider because they will lose their cell phone number," he says.

"We also have people who have been with AT&T Wireless for a long time and are in an area where they would get better service coverage from another provider," he adds.

Portability will make these types of changes much easier, he says.

"[It] allows users to take off the handcuffs that were binding them to one provider. They will be able to negotiate service contracts that better fit their needs," Mobile Competency's Egan says.

Most analysts expect customer churn rates to surpass the current industry average — which IDC pegs at 2.5% per month — soon after the new rules take effect.

But most also expect customer turnover to stabilize near pre-portability rates before long. That's what happened in Europe and Asia when portability was instituted. ■



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BackSpin Mark Gibbs



Solutions to spam

This week we will return to the subject that I abandoned a few weeks ago in favor of exploring business ethics and the dark and tawdry world of MCI (keep the letters coming!). The topic we left was spam and what solutions exist to defeat it.

There are three system architectures for handling spam: At the desktop, at the mail server, or outsourced.

Handling spam at the desktop requires that you install anti-spam software on each PC. This can be a significant overhead unless you have an automated software distribution system. And managing and supporting, say, 1,000 anti-spam desktop installations is not a trifling task unless most of your users are smart with computers.

That said, for "power users" or small workgroups a desktop product might be the best solution. One such product I use and find very effective is Ella from Open Field Software.

Mail server-based and outsourced products are easier to deploy in large organizations, but how the users interact with the anti-spam system will be crucial to effectiveness. For example, messages determined to be spam usually will be held in a folder somewhere. This raises a number of questions: How will users know if suspected spam to their address is

on hold? How will they examine messages on hold and release them if they are false positives? How do users notify the anti-spam system in the case of false negatives?

And for all architectures there are management questions: Can users submit whitelists of correspondents whose messages must be passed without examination? Do the users have to submit the lists through tech support or can they manage it themselves? Can users select the auto-purge duration or is it a systemwide value?

Some systems use distributed blacklists and/or detection rules that are provided by the anti-spam system vendor or another third party. Can you define whitelists that will override the third-party blacklist? This is important because if your biggest customer accidentally gets on a blacklist you don't want to find you've missed their huge urgent order because someone else thinks they are spamming!

There are the reporting considerations: You want to know is how many messages were received and how many of those were determined to be spam.

Many anti-spam products are collections of different filters that together determine the probability that a particular message is spam. For example, this is the strategy SurfControl uses in its server-based product E-mail Filtering.

Another interesting approach is to not worry at all

about content filtering and simply pay attention to white and black lists. This is the heart of the approach Secluda uses in its InboxMaster product, which I'm currently examining.

Yet another approach that doesn't use content filtering is to verify that there's really a human sending the message — a technique called challenge/response. These systems require unknown senders to take a test (for example, follow a link to a Web site and enter a code presented in a graphic that a computer can't read) to release the sender's held messages. The problem is that the testing technique often seems to irritate people because it's too complex.

A simplified version of this approach is called source verification or, less accurately, source authentication. The idea is to hold messages from unknown senders and respond with a message asking that they simply reply. The fact that the sender replies means that he isn't a spammer operating out of a temporary account, so the message is then released.

While this doesn't catch the spam from clueless companies that buy junk e-mail lists to "build" business, it surprisingly appears to block maybe 90% of spam! I'm currently testing Source Authentication Small Business Edition from Block All Spam, Inc.

Next week: The management viewpoint. Comment with authentication at backspin@gibbs.com.



COMPENDIUM

By Adam Gaffin

SoAnnoying

Here at Network World, we practice what we preach when it comes to security — so

I wasn't too concerned last week about the newest SoBig variant.

What proved to be really annoying, however, were the 47 gazillion automated messages I got from virus scanners at other companies saying I'm a low-life scum who had attempted to send a virus-infected message to one of their employees.

This sort of thing might have been almost useful a few years ago, back before virus writers realized how much fun they could have with the Microsoft Outlook address book. But these days, the messages clog in-boxes and confuse end users, because there typically is no relationship between the sender of an infected message and the person whose address is in the "from" field. So anti-virus vendors: Instead of sending out press releases every 15 minutes about how your product is faster than a speeding virus, could you maybe turn this "feature" off?

One cool thing that's come out of all this is that peer-to-peer anti-spam systems work. I subscribe to Cloudmark's SpamNet, which works in part by a feedback mechanism through which other subscribers report spam. By Tuesday afternoon, I noticed my spam folder was filling up with SoBig-generated messages, because SpamNet was marking them as spam.

Meanwhile, Kevin Werbach reported (see www.nwfusion.com, DocFinder: 7353) similar success with SpamAssassin and some hand-coded rules, but added that 1,470 SoBig-related messages (as of last Tuesday) is just too much:

"We have to confront the reality: Either e-mail is broken, Microsoft's e-mail software is broken, or those two statements are the same. . . ."

SoMousepad

As we here in Fusionland watched our in-boxes fill up last week, we got to thinking, "Hmm, there's a contest in here." Yeah, we need to cut down on the caf-

feine consumption. In any case, welcome to the official Network World Fusion 2003 Stupid Sobig competition.

The rules are simple: Send us, by 12:01 a.m. (EDT) Aug. 28, the number of SoBig-related messages that have come into your mail account. We know that faithful *Network World* readers just love tallying up stuff like that. Send us, by the same deadline, your best or worst SoBig-related story, anecdote or comment.

The winner in each category will get a Fusion mousepad. Not available in any stores, these increasingly valuable collector's items will make you the envy of the cube farm. Entries can be sent to agaffin@nww.com.

Monitoring employees in the name of science

"The Cost of E-mail Interruption" is an interesting paper that attempts to gauge the impact of answering e-mail on worker productivity. As interesting as the conclusions (that people stop what they're doing to read e-mail, basically) is the detailed description of how the researchers collected their data:

"It was important that the Danwood Group employees did not know they were being monitored as this could have affected the results of this interrupt study," the authors write. So the researchers used WinVNC — after modifying the client to remove its telltale system-tray icon — and then had to convince management that it shouldn't get copies of all the recorded information.

"This concept is a hard one to accept for many managers," the authors say. They reason that they could use the data to do some aspects of their work more effectively, such as targeting promotion, or even firing. Their company has paid to have the data collected, so why shouldn't it be made available to them? However, if the individual confidentiality had been compromised, the data used against even one individual would have brought the entire data collection scheme to an abrupt halt."

You can read the paper at DocFinder: 7354.

Read Adam Gaffin's Compendium every day at DocFinder: 7355. He can be reached at agaffin@nww.com.

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